Kern-Tulare / Rag Gulch Water Districts
Water Management Plan
2008 Criteria

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Index

Section 1: Description of the District

District Name: Kern-Tulare/Rag Gulch Water District

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Web Address None

A. History

Kern-Tulare / Rag Gulch

1. Date district formed: 1974/1955 *Date of first Reclamation contract:* 1976

Original size (acres): 30,800/6,033 *Current year (last complete calendar year):* 2008

2. Current size, population, and irrigated acres

	2008
size (acres)	23,434
population served	0
irrigated acres	19,066

3. Water supplies received in current year

Water Source	*2008 AF*
Federal urban water (Tbl 1)	
Federal agricultural water (Tbl 1)	22,527
State water (Tbl 1)	
Other Wholesaler (define) (Tbl 1)	
Local surface water (Tbl 1)	17,824
Upslope drain water (Tbl 1)	
District ground water (Tbl 2)	
Banked water (Tbl 1)	
Transferred water (Tbl 6)	
Recycled water (Tbl 3)	
Other (define) (Tbl 1)	
Total	40,351

4. Annual entitlement under each right and/or contract

	AF	*Source*	*Contract #*	*Availability period(s)*
BOR Agriculture	40,000	CVP	14-06-200-8601A	July, August, September
BOR Agriculture	13,300	CVP	14-06-200-8367A	July, August, September
City of Bakersfield	20,000	Kern River	76-61	March - July
City of Bakersfield	3,000	Kern River	76-63	March - July

The District has a contract with the Bureau of Reclamation for an annual supply of up to 53,300 acre-feet of water from the Central Valley Project (CVP). The State of California Department of Water Resources (DWR) conveys water under this contract through the California Aqueduct to Tupman. Water

is then conveyed through the Cross Valley Canal, where it is either delivered to the Friant-Kern Canal or exchanged with Arvin-Edison for water available in the Friant-Kern Canal.

The District has a contract with the City of Bakersfield for an average annual supply of 23,000 acre-feet of Kern River water. Water under this contract is typically delivered to Kern County Water Agency Improvement District No. 4 (ID4) in exchange for State Water Project (SWP) water or other Kern River supplies. The SWP water is conveyed through the Cross Valley Canal, where it is either delivered to the Friant-Kern Canal or exchanged with Arvin-Edison for water available in the Friant-Kern Canal. Another means of delivering Kern River Water to the District is to convey Kern River water in the Beardsley Canal and deliver it to the Friant-Kern Canal.

The District has a contract with Kern County Water Agency for the purchase of SWP water. Water under these contracts is available from time to time and has been purchased by the District. This water is available in the Cross Valley Canal, where it is either delivered to the Friant-Kern Canal or exchanged with Arvin-Edison for water available in the Friant-Kern Canal.

The District contracts annually for Section 215 Water. The District also purchases Class 1 and Class 2 Friant water supplies from Friant Contractors on an as-available basis. Occasionally, there are flood flows available from the Friant-Kern Canal, which the Districts also purchase.

5. Anticipated land-use changes

No land use changes are anticipated in the near term future. However, the District contains 2,884 acres of lands within the District's boundary that are outside of the Service Area of the District. It is the District's policy to allow these lands to be detached from the District if the landowner so requests. There are also areas of land within the District's boundaries that are developed agriculture, not included within the Districts, and reliant upon wells for their water supply. If the landowner makes the request and District determines that there will be no adverse impact to other lands within the District, the District may choose to annex these lands into the District.

6. Cropping patterns

List of current crops (crops with 5% or less of total acreage) can be combined in the 'Other' category.

Original Plan (1994)		*2001*		*2008*	
Crop Name	*Acres*	*Crop Name*	*Acres*	*Crop Name*	*Acres*
Alfalfa	NA	Alfalfa	0	Alfalfa	320
Almonds	NA	Almonds	661	Almonds	1,820
Asparagus	NA	Asparagus	15	Asparagus	0
Blue Berries	NA	Blue Berries	80	Blue Berries	279
Cherries	NA	Cherries	68	Cherries	30
Grapes	NA	Grapes	7,622	Grapes	5,797
Grapefruit	NA	Grapefruit	33	Grapefruit	0
Kiwi	NA	Kiwi	201	Kiwi	198
Lemon	NA	Lemons	225	Lemons	138
Olives	NA	Olives	203	Olives	203
Oranges	NA	Oranges	7,749	Oranges	7,163
Persimmons	NA	Persimmons	20	Persimmons	0
Pistachios	NA	Pistachios	1,111	Pistachios	2,669
Pomegranates	NA	Pomegranates	0	Pomegranates	53

Prunes	NA	Prunes	73	Prunes	0
Walnuts	NA	Walnuts	30	Walnuts	0
misc. (<5%)	NA	misc. (<5%)		misc. (<5%)	
TOTAL	NA	TOTAL	18,151	TOTAL	18,670

7. Major irrigation methods (by acreage) (Agricultural only)

Original Plan (1994)		*2003*		*2008*	
Irrigation Method	*Acres*	*Irrigation Method*	*Acres*	*Irrigation Method*	*Acres*
Drip/min-spray	NA	Drip/min-spray	16,430	Drip/min-spray	18,382
Sprinkler	NA	Sprinkler	1,545	Sprinkler	0
Border	NA	Border	276	Border	234
TOTAL	NA	TOTAL	18,251	TOTAL	18,616

B. Location and Facilities

See Attachment A for points of delivery, turnouts (internal flow), and outflow (spill) points, measurement locations, conveyance system, storage facilities, operational loss recovery system, wells, and water quality monitoring locations

1. Incoming flow locations and measurement methods (include on the District Map):

Location Name	*Physical Location*	*Type of Measurement Device*	*Accuracy*
Avenue 40	Pumping Plant	Propeller	±5 %
Avenue 36	Pumping Plant	Propeller	±5 %
Avenue 24	Pumping Plant	Propeller	±5 %
Avenue 4	Pumping Plant	Propeller	±5 %
Cecil	Pumping Plant	Propeller	±5 %
Woollomes	Pumping Plant	Propeller	±5 %
Elmo	Pumping Plant	Propeller	±5 %

2. Current year Agricultural Conveyance System (include on the District Map)

Miles Unlined - Canal	*Miles Lined - Canal*	*Miles Piped*	*Miles – Other*
0	0	65	0

3 Current year Urban Distribution System
NONE

4. Storage facilities (tanks, reservoirs, regulating reservoirs) (include on the District Map)

Name	*Type*	*Capacity (AF)*	*Distribution or Spill*
Big 4 Reservoir	Compacted Dirt	350	Distribution
Cecil Reservoir	Compacted Dirt	80	Distribution
Avenue 24 Reservoir	Compacted Dirt	60	Distribution
Section 7 Reservoir	Compacted Dirt	20	Distribution
TOTAL		510	

5. Outflow locations and measurement methods
Provide this information in Section 2 F.

6. *Description of the agricultural spill recovery system*
NONE, piped system - no spill

7. *Agricultural delivery system operation (check all that apply)*

On-demand	*Scheduled*	*Rotation*	*Other (describe)*
X		X	

The District's distribution system is inadequate to fully satisfy irrigation demands and water deliveries must be prorated during the summer months. As a result of these prorates, water users rely upon privately owned wells, even in the wettest of years.

8. *Restrictions on water source(s)*

Source	*Restriction*	*Cause of Restriction*	*Effect on Operations*
USBR AG	Environmental and regulatory restrictions in the Delta	Length of approval for transfers and exchanges	Lost opportunity to manager water
USBR AG	Environmental and regulatory restrictions in the Delta	Length of approval for transfers and exchanges	Lost opportunity to manager water
City of Bakersfield	None	N/A	None

9. *Proposed changes or additions to facilities and operations for the next 5 years*
   1. Design and construct Ninth Avenue Pipeline to maximize the delivery capability of surface water when it is available to save groundwater resources for future years.
   2. Remotely monitor pressure in the Cameo system to reduce system over-pressuring, minimize leaks, and minimize power use.
   3. Install a VFD and SCADA at the Avenue 4 pumping plant to automate the system to improve water user flexibility, reduce system over--pressuring, minimize leaks, and minimize power use.
   4. Install a boost pump on Woollomes Pipeline to increase the delivery capacity of the Woollomes Pipeline and improve power use efficiency.
   5. Remove booster pumps from the District's distribution system to reduce system over--pressuring and minimize leaks.

C. Topography and Soils

1. *Topography of the district and its impact on water operations and management*
The land in the District is sloping, with an average slope of 40 feet per mile, dropping from east to west. The District's distribution system consists entirely of pressure pipelines. Therefore, there is little impact on District water management attributable to topography. There are no soil limitations such as salinity, high water tables, or adverse infiltration rates that affect the use of water within the district. Below is a summary of soils in the District.

2. *District soil association map*
Attachment, B

3. Agricultural limitations resulting from soil problems (Agricultural only)

Soil Problem	*Estimated Acres*	*Effect on Water Operations and Management*

Salinity	0	
High-water table	0	
High or low infiltration rates	0	
Other (define)	0	

D. Climate

1. General climate of the district service area

The District is located in a climate characteristic of the southern San Joaquin Valley foothills. The summer climate is hot and dry while winters are cooler with somewhat more rainfall than adjacent valley areas. The District is located within a thermal zone with favorable air movement where citrus, deciduous trees and other frost sensitive crops are successfully grown. The average length of the growing season in the area is from 250 to 300 days per year. Wind is out of the Northwest at 5-15 mph. There are 350 frost free days. Monthly temperature data is provided in the table below.

	Jan	*Feb*	*Mar*	*Apr*	*May*	*Jun*	*Jul*	*Aug*	*Sep*	*Oct*	*Nov*	*Dec*	*Annual*
Avg. Precip.	1.1	1.2	1.2	0.8	0.2	0.1	0.0	0.0	0.2	0.3	0.7	0.8	6.6
Avg. Temp.	46	53	57	63	71	78	83	81	76	66	55	46	65
Max. Temp.	81	83	92	101	107	113	114	113	111	105	92	78	114
Min. Temp.	19	22	26	31	39	43	49	46	41	29	23	14	14
ETo	1.3	2.1	3.9	5.7	7.5	8.0	8.2	7.4	5.8	4.1	2.0	1.2	57.0

Weather station ID Shafter (049452) *Data period: Year* 1948 *to Year* 2005

Average wind velocity 5-15 mph *Average annual frost-free days:* 315

2. Impact of microclimates on water management within the service area

The District does not have any microclimates which impact water management.

E. Natural and Cultural Resources

1. Natural resource areas within the service area

Name	*Estimated Acres*	*Description*
White River	NA	intermittent stream
Rag Gulch	NA	intermittent stream

2. Description of district management of these resources in the past or present

The only known natural resource within the boundaries is White River and Rag Gulch. Both of these are intermittent streams that the District does not own or control. The District considered developing a groundwater banking program along the White River near the western border of the District. However, it was found that the saturated depth of the unconfined aquifer was not adequate to sustain groundwater banking. There are no recreational or cultural resources within the District. There are no known recreational or cultural resources within the District.

3. Recreational and/or cultural resources areas within the service area

Name	*Estimated Acres*	*Description*
NONE		

F. Operating Rules and Regulations

1. Operating rules and regulations
See Attachment C, District Rules and Regulations (water related)

2. Water allocation policy
See Attachment B, Page 3
If capacity of water supplies are limited, then deliveries are prorated based upon acres in the service area.

3. Official and actual lead times necessary for water orders and shut-off)
See Attachment B, Page 5
Summary – The District has historically required a minimum of 24-hours notice for water orders and shutoffs with changes only available at 7 a.m. Monday through Saturday. Manual operation of the distribution system and limited distribution system capacity made these requirements necessary. However, improvements to the distribution system within the past 8 years have increased the Districts flexibility. The District now allows water users to operate their own turnouts, provided they keep the District informed through water orders, which are due by 9:00 am on the day prior to the day they desire to have water turned on, turned off, or the flow rate changed.

4. Policies regarding return flows (surface and subsurface drainage from farms) and outflow
See Attachment B, Page 9
Summary – no surface or subsurface drainage allowed

5. Policies on water transfers by the district and its customers
See Attachment C, Page 4
Summary – no customer transfers allowed, Board may approve transfers of surplus supplies

G. Water Measurement, Pricing, and Billing

1. Agricultural Customers

a. Number of farms 51

b. Number of delivery points (turnouts and connections) 102

c. Number of delivery points serving more than one farm 0

d. Number of measured delivery points (meters and measurement devices) 102

e. Percentage of delivered water that was measured at a delivery point 100

f. Delivery point measurement device table (Agricultural only)

Measurement Type	*Number*	*Accuracy (+/- %)*	*Reading Frequency (Days)*	*Calibration Frequency (Months)*	*Maintenance Frequency (Months)*
Orifices					
Propeller meter	102	±2%	Daily during delivery	Annual	Annual

Weirs					
Flumes					
Venturi					
Metered gates					
Acoustic doppler					
Other (define)					
Total	102				

The maintenance procedures for repairing or recalibrating district flow meters are by replacement with new meters or having meters repaired by factory trained and authorized personnel.

2. *Urban Customers*

a. *Total number of connections* 1

b. *Total number of metered connections* 1

c. *Total number of connections not billed by quantity* 0

d. *Percentage of water that was measured at delivery point* 100

e. *Percentage of delivered water that was billed by quantity* 100

f. *Measurement device table*

Meter Size and Type	*Number*	*Accuracy (+/-%)*	*Reading Frequency (Days)*	*Calibration Frequency (Months)*	*Maintenance Frequency (Months)*
Turbo	0				
Propeller	1	±2%	Daily during delivery	Annual	Annual
Total	1				

3. *Agriculture and Urban Customers*

a. *Current year agriculture charges - including rate structures and billing frequency*

See Attachment B, for current year rate ordinance

b. *Annual charges collected from customers (current year data)*

Fixed Charges			
	$ per ac	*Acres*	*$ collected per year*
Standby charge	72	19,066	$1,372,752
Developed lands	35	18,000	$630,000
Undeveloped lands	20	1,066	$21,320
		TOTAL	$2,024,072

Volumetric charges			
Charges Location	*Charge units $/AF*	*Units billed during year AF*	*$ collected ($ times units)*
North	$155	10,941.40	$1,695,917.00
Avenue 4	$118	620.71	$73,243.78
Woollomes/Cecil	$177	24,633.61	$4,360,095.87

Rag Gulch	$133	3,713.57	$493,904.81
Twin Pipes	$136	2,912.50	$396,100.00
Cameo	$151	5,206.57	$786,192.07
South	$137	4,159.64	$569,870.68
	Total	40,355.36	$8,375,324.21

See Attachment C, District Sample Bills

c. Water-use data accounting procedures

All turnout meters are read at the end of the month and landowners are billed for the water they used that month. This monthly water bill also includes water use to date for the year. Historic monthly deliveries to each water user are distributed at monthly Board meetings and records are kept on file at the District office. These records are available for review by the water users and the District's staff. Attached in Appendix D is a sample monthly water bill and assessment/standby statement.

H. Water Shortage Allocation Policies

1. Current year water shortage policies or shortage response plan - specifying how reduced water supplies are allocated

A copy of the District's "Rules and Regulations for Distribution of Water" is attached in Appendix C. If the District's anticipated supply of water for the year will not be sufficient to meet the anticipated demands, the District will allocate the water supply on the basis of gross assessable acres within the Service Area.

2. Current year policies that address wasteful use of water and enforcement methods

See Attachment B, Page 9

The cost of water within the District is significant, water users pay only for the water they use, and over irrigating crops does not increase yield. Therefore, wasteful use of water is not an issue for this District.

Section 2: Inventory of Water Resources

A. Surface Water Supply

1. Acre-foot amounts of surface water delivered to the water purveyor by each of the purveyor's sources

See Water Inventory Tables, Table 1

2. Amount of water delivered to the district by each of the district sources for the last 10 years

See Water Inventory Tables, Table 8

B. Ground Water Supply

1. Acre-foot amounts of ground water pumped and delivered by the district

NONE See Water Inventory Tables, Table 2.

2. Ground water basin(s) that underlies the service area

Name	*Size (Square Miles)*	*Usable Capacity (AF)*	*Safe Yield (AF/Y)*
Kern Basin	60.57	Unknown	28,500

3. Map of district-operated wells and managed ground water recharge areas

NONE

The District has no District owned or operated wells or managed groundwater recharge areas. The depth to groundwater varies from about 200 feet to over 600 feet and averages approximately 450 feet throughout the Districts. There are static groundwater levels taken in the spring and do not include the temporary drawdown of 50 to 100 feet caused by pumping. Sources of groundwater replenishment include underflow into the Districts from both the east and west.

4. Description of conjunctive use of surface and ground water

The district recharges excess surface water when available and pumps groundwater only the safe yield in non-shortage years. Recharged water is kept in the groundwater basin as an emergency supply. The district has groundwater banking programs with Rosedale-Rio Bravo Water Storage District and North Kern Water Storage District, where recharge occurs.

5. Ground Water Management Plan

See Attachment D, Ground Water Management Plan

In June 2006, the Districts adopted a Groundwater Management Plan. A copy of this plan is included in Appendix E. This Groundwater Management Plan includes a detailed description of groundwater conditions underlying the District.

6. Ground Water Banking Plan

See Attachment D, Ground Water Banking Plan

C. Other Water Supplies

1. "Other" water used as part of the water supply

See the Water Inventory Tables, Table 1

Several landowners within the district use recycled oil field water that is obtained through private agreements. In 2002, District staff investigated the availability of using reclaimed oil field water as an additional source of water. However, it was determined that the amount of recycled oil field water available within 5 miles of the Districts facilities was minimal. The District in now investigating using reclaimed oil field water from up to 15 miles from the District.

D. Source Water Quality Monitoring Practices

1. *Agricultural water quality concerns:* *Yes* _____ *No* X

2. *Description of the agricultural water quality testing program and the role of each participant, including the district, in the program*

Friant Kern Canal Authority conducts the monitoring program 1 times a year and tests 5 separate locations along the Friant Kern Canal.

3. *Current water quality monitoring programs for surface water by source*

Analyses Performed	*Frequency*	*Concentration Range*	*Average*
None			

There are no water quality problems associated with surface water delivered for the Friant-Kern Canal. All of the Districts surface water supplies are pumped from the Friant-Kern Canal. Friant Water Users Authority monitors water quality in the Friant-Kern Canal. Surface water available from the Friant-Kern Canal typically has a TDS of less than 50 ppm.

Current water quality monitoring programs for groundwater by source

Analyses Performed	*Frequency*	*Concentration Range*	*Average*
None			

Groundwater quality varies throughout the District depending upon the aquifer wells are tapping. TDS in landowner wells within the District can range from 250 to 500 ppm.

E. Water Uses within the District

1. *Agricultural*

See Water Inventory Tables, Table 5 - Crop Water Needs

2. *Types of irrigation systems used for each crop in current year*

Crop name	*Total Acres*	*Level Basin - acres*	*Furrow - acres*	*Sprinkler - acres*	*Low Volume - acres*	*Multiple methods - acres*
Alfalfa	320			320		
Almonds	1,820			1,820		
Blue Berries	279			279		
Cherries	30			30		
Grapes	5,797			5,797		
Kiwi	199			199		

Lemons	138			138		
Olives	204				204	
Oranges	7,163				7,163	
Pistachios	2,669				2,663	
Pomegranates	53				53	
Prunes	32				32	
misc. (<5%)	0				0	
TOTAL	18,698				18,698	

~~*3. Urban use by customer type in current year*~~

~~*4. Urban Wastewater Collection/Treatment Systems serving the service area – current year*~~

5. Ground water recharge/management in current year (Table 6)

Recharge Area	*Method of Recharge*	*AF*	*Method of Retrieval*
None			
	Total		

As a result of increasing environmental actions in the delta, the District's CVP water supply is only a fraction of what it once was. This reduced water supply to the District leads to inadequate water supplies to permanent crops and will cause a reduction in groundwater levels. This reduction in the District's CVP water supply has caused the District to pursue groundwater banking programs. Below is a description of two such programs.

a. North-Kern Water Storage District

The District has developed a long-term groundwater banking program with North Kern Water Storage District (North Kern) to deliver water to North Kern for later withdrawal and use by the District. The project yields an annual dry year supply of up to 5,000 acre-feet and improves local groundwater supplies to North Kern. The agreement requires the District to bank water before it can be extracted and leave 10% of the water banked in North Kern to account for losses. Supplies available to the Districts for banking include the District's CVP contract supplies, Section 215 water, flood flows conveyed in the Friant-Kern Canal, purchases from Friant contractors, and Kern River water.

Water is either directly recharged in existing spreading works or indirectly recharged by making irrigation deliveries to lands that would otherwise be pumping groundwater. Previously banked water will be returned to the District with wells that discharge into the Friant-Kern Canal. The program facilities include a 200 cfs turnout from the Friant-Kern and four wells which discharge directly into the Friant-Kern Canal.

b. Rosedale-Rio Bravo Water Storage District

The District has also developed a long-term groundwater banking program with the Rosedale- Rio Bravo Water Storage District (Rosedale-Rio Bravo). The project consists of the District recharging water in Rosedale-Rio Bravo when surface water supplies are available and extracting groundwater during years of inadequate surface water supplies. The project yields an estimated dry year annual supply of up to 9,000 acre-feet and improves local groundwater supplies to Rosedale-Rio Bravo. The agreement requires the District to bank approximately two acre-feet for each acre-foot extracted and bank water before it can be extracted. Supplies available to the Districts for banking include the District's CVP contract supplies, Section 215 water, flood flows conveyed in the Friant-Kern Canal,

purchases from Friant contractors, Kern River water, and SWP water.

Water will be directly recharged in existing spreading works within Rosedale-Rio Bravo. Previously banked water will be returned to the Districts with wells that discharge into the Cross Valley Canal. The program facilities include three wells and approximately 7,400 feet of pipeline from the wells to the Cross Valley Canal.

6. Transfers and exchanges into or out of the service area in current year (Table 6)

From Whom	*To Whom*	*AF*	*Use*
None			

The District's CVP water is conveyed in the California Aqueduct under contract with DWR. Under this contractual agreement the District has a second priority (after DWR use) to pumping capacity at Banks. This second priority causes uncertainty in some year with respect to being able to pump the District's CVP water south of the delta. As a result of these uncertainties, the District has entered into an exchange and transfer agreement with Kern County Water Agency to assist with regulation of this water supply. Under terms of the exchange, Kern County Water Agency provides State Water Project water to the District on an irrigation demand schedule and Kern County Water Agency takes delivery of the District's CVP supply as capacity becomes available.

The District's CVP water supplies are available on the California Aqueduct or the Cross Valley Canal while the District is located east of the Friant-Kern Canal approximately 30 miles upstream of the Cross Valley Canal. This geographical difference has caused the District to enter into exchange agreements with Arvin-Edison, ID4, North Kern, and others. Under terms of the Arvin-Edison exchange, the District delivers all or a portion of its CVP, Kern River, and SWP supplies to Arvin-Edison in the Cross Valley Canal, California Aqueduct, or Kern River Carrier Canal. Arvin-Edison provides water to the District in the Friant-Kern Canal. There are years when there is not enough water available under Arvin-Edison's Friant contract to completely facilitate an exchange with the District or an exchange agreement cannot be reached. When exchange opportunities with Arvin-Edison are limited, the District must find another exchange partner or directly deliver its water to the Friant Kern Canal through an existing interconnection between the Cross Valley Canal and the Friant Kern Canal.

Once water is delivered into the Friant-Kern Canal from the Cross Valley Canal or Beardsley Canal, it is delivered to the District through an operational exchange facilitated by Friant Water Authority with other deliveries on the Friant-Kern Canal. To physically deliver the water all the way to the District would require pumping over three check structures: the Shafter Check, the Poso Creek Check, and the Lake Woollomes Check. However, it is only necessary to deliver water upstream in the Friant-Kern Canal until other deliveries can be intercepted and exchanged. This intercept exchange can usually be made with Arvin Edison, which requires no additional lifts, or Shafter Wasco Irrigation District, which requires pumping water over the Shafter Check. As deliveries to Arvin-Edison and SWID are reduced, the District must pump water further upstream to make the intercept exchange. The District has a permanent pump in place at the Shafter Check with a capacity of 30 cfs and has, during dry years, installed additional temporary pumps at the location to increase the capacity by another 50 cfs. There are facilities currently in place to allow for the placement of temporary pumps at the Poso Creek Check and the Lake Woollomes Check. Temporary pumps have been installed and used at these locations during extremely dry years.

The District has requested and received annual Warren Act Contracts from time to time since 1987. More recently, the District has consistently requested and received annual Warren Act Contracts for years 2003 through 2008. The District will be requesting an annual Warren Act Contract for 2009 and intends on having a long-term Warren Act Contract in place before the end of 2009. The District's use of the Warren Act Contract has historically been very limited due to successful exchange arrangements with other water districts. However, as water supply conditions change, the District will likely require more frequent use of a Warren Act Contract in the future.

6. Trades, wheeling, wet/dry year exchanges, banking or other transactions in current year (Table 6)

From Whom	*To Whom*	*AF*	*Use*
None			

7. Other uses of water in current year

Other Uses	*AF*
None	

F. Outflow from the District

See Facilities Map, Attachment A, for the location of surface and subsurface outflow points, outflow measurement points, outflow water-quality testing locations

1. Surface and subsurface drain/outflow in current year
NONE

2. Description of the Outflow (surface and subsurface) water quality testing program and the role of each participant in the program
NONE

3. Outflow (surface drainage & spill) Quality Testing Program
NONE

4. Provide a brief discussion of the District's involvement in Central Valley Regional Water Quality Control Board programs or requirements for remediating or monitoring any contaminants that would significantly degrade water quality in the receiving surface waters.
None

G. Water Accounting (Inventory)

1. Water Supplies Quantified

a. Surface water supplies, imported and originating within the service area, by month (Table 1)
b. Ground water extracted by the district, by month (Table 2)
c. Effective precipitation by crop (Table 5)
d. Estimated annual ground water extracted by non-district parties (Table 2)

~~*e. Recycled urban wastewater, by month (Table 3)*~~
f. Other supplies, by month (Table 1)

2. *Water Used Quantified*

   a. Agricultural conveyance losses, including seepage, evaporation, and operational spills in canal systems (Table 4) or
   b. Consumptive use by riparian vegetation or environmental use (Table 6)
   c. Applied irrigation water - crop ET, water used for leaching/cultural practices (e.g., frost protection, soil reclamation, etc.) (Table 5)
   ~~*d. Urban water use (Table 6)*~~
   e. Ground water recharge (Table 6)
   f. Water exchanges and transfers and out-of-district banking (Table 6)
   g. Estimated deep percolation within the service area (Table 6)
   h. Flows to perched water table or saline sink (Table 7)
   i. Outflow water leaving the district (Table 6)
   j. Other

3. *Overall Water Inventory*
   a. Table 6

H. Assess Quantifiable Objectives:

Identify the Quantifiable Objectives that apply to the District (Planner, chapter 10) and provide a short narrative describing past, present and future plans that address the CALFED Water Use Efficiency Program goals identified for the District.

QO #	*QO Description*	*Past, Present & Future Plans*
183	Decrease flows to salt sinks to increase the water supply for beneficial uses.	The Districts continue to pursue and support measures that will increase the availability and reliability of the Districts to export its CVP water supplies for the delta.
186	Provide long-term diversion flexibility to increase the water supply for beneficial uses.	The Districts continue to pursue and support measures that will increase the availability and reliability of the District to export its CVP water supplies for the delta.
187	Provide long-term diversion flexibility to increase the water supply for beneficial uses.	The Districts continue to pursue and support measures that will increase the availability and reliability of the District to export its CVP water supplies for the delta.

KERN-TULARE & RAG GULCH WD	Decrease flows to salt sinks to increase the water supply for beneficial uses.	All affected lands	18	183
	Provide long-term diversion flexibility to increase the water supply for beneficial uses.	Pixley NWR	18	186

	Provide long-term diversion flexibility to increase the water supply for beneficial uses.	Salt affected soils	18	187

Section 3: Best Management Practices (BMPs) for Agricultural Contractors

A. Critical Agricultural BMPs

1. *Measure the volume of water delivered by the district to each turnout with devices that are operated and maintained to a reasonable degree of accuracy, under most conditions, to +/- 6%*

Number of turnouts that are unmeasured or do not meet the standards listed above: 0

Number of measurement devices installed last year: 0

Number of measurement devices installed this year: 0

Number of measurement devices to be installed next year: 0

DISTRICT IS COMPLETELY METERED.

2. *Designate a water conservation coordinator to develop and implement the Plan and develop progress reports*

Name: Steven C. Dalke *Title*: General Manager

Address: 5001 California Avenue, Suite 202, Bakersfield, CA 93309

Telephone: (661) 327-3132 *E-mail*: Sdalke@Kern-tulare.com

3. *Provide or support the availability of water management services to water users*
See Attachment J, Notices of District Education Programs and Services Available to Customers.

a. On-Farm Evaluations

1) On farm irrigation and drainage system evaluations using a mobile lab type assessment

	Total in district	*# surveyed last year*	*# surveyed in current year*	*# projected for next year*	*# projected 2nd yr in future*
Irrigated acres	19,066	476	619	NA	NA
Number of farms	120	6	5	NA	NA

The Districts provide financial support to the Pond-Shafter-Wasco Resource Conservation District for the Mobile Irrigation Lab, which provides on-farm irrigation evaluations. In addition, the Friant Water Users Authority (which the Districts financially support) has compiled and maintains lists of organizations providing financial assistance and on-farm water management. These lists include on-farm irrigation management consultants, irrigation management software, and sources of real-time CIMIS ET data. Water users within the Districts are notified annually regarding the availability of these lists by publishing a notice in the "Irrigation Tech-Line". The Friant Water Users Authority using DWR's AgWater program is available to demonstrate general irrigation concepts to interested water users

2) Timely field and crop-specific water delivery information to the water user
The District provides monthly water delivery data to their water users to allow them to monitor their water use and irrigation efficiency.

b. Real-time and normal irrigation scheduling and crop ET information

The Friant Waterline is mailed to all water users within the Districts each month. The Friant water line includes articles respecting irrigation management and related topics. In addition, normal year and real-time ET data for 12 local CIMIS stations are provided to the Districts on a weekly basis from the Friant Water Users Authority (which the Districts finically supports). Crop coefficients, as developed by Kings River Conservation District, are also provided in the same report. Water users within the Districts are notified from time to time that this information is on file at the district office.

c. Surface, ground, and drainage water quantity and quality data provided to water users

Surface water quality for water conveyed through the Friant-Kern Canal and Madera Canal is typically analyzed on an annual basis at eight locations. This data is available from Friant Water Authority upon request.

d. Agricultural water management educational programs and materials for farmers, staff, and the public

Program	*Co-Funders (If Any)*	*Yearly Targets*
Family Water Alliance, California Farm Water Coalition		Annual
Friant Water Users Authority		Semi-Annual
Friant Water Authority		Semi-Annual
United Broadcasting "Conserve America"		Semi-Annual

The District financially supports the Family Farm Water Alliance, the Committee for a Sustainable Delta, and the Water Association of Kern County. Each of these entities provide education and information to the general public education. In addition, the district's general manager is president of the Water Association of Kern County and participates in providing the local media and policy makers with information related to water management.

The District financially supports the Friant Water Users Authority. One of the activities of the Friant Water Users Authority is to participate in the semi-annual United Broadcasting "Conserve America" public service announcement campaign. Another activity of the Friant Water Users Authority is to publish and distribute the "Irrigation Tech-Line" approximately four times per year. The Irrigation Tech-Line is an educational water management newsletter that features grower success stories and a corresponding technical article (soil/water/plant) with each article. This newsletter is distributed to all water users within the district along with the Friant Waterline.

e. other

None

4. Pricing structure - based at least in part on quantity delivered

District water is priced to provide incentive to use water conservatively while preserving groundwater resources. The incentive pricing program for Kern-Tulare includes three charges a special assessment (per acre), a standby charge (per acre), and a water toll (per acre-foot). These charges are reviewed annually by District staff and Board of Directors. The District provides monthly water delivery data to their water users to allow them to monitor their water use and irrigation efficiency. Sample water bills are presented in Appendix D.

5. *Evaluate and describe the need for changes in policies of the institutions to which the district is subject*

The District has no suggestions.

6. *Evaluate and improve efficiencies of district pumps*

The District is very conscience about maintaining high efficiency at all pumping plants. This concern is driven by the high cost of electricity and large pumping lift from the Friant-Kern Canal to District turnouts. The District's personnel keep a close watch on discharge at all pumping plants. A reduction in delivery capability signals the beginning of a loss in efficiency. When this happens, the District staff repairs the problem as soon as practically possible. In addition, outside contractors are occasionally hired to perform pump tests at all district pumps.

B. Exemptible BMPs for Agricultural Contractors

1. Facilitate alternative land use - **NA**

Drainage Characteristic	*Acreage*	*Potential Alternate Uses*
High water table (<5 feet)	0	
Poor drainage	0	
Ground water Selenium concentration > 50 ppb	0	
Poor productivity	0	

2. Facilitate use of available recycled urban wastewater that otherwise would not be used beneficially, meets all health and safety criteria, and does not cause harm to crops or soils

Sources of Recycled Urban Waste Water	*AF/Y Available*	*AF/Y Currently Used in District*
NA		

3. Facilitate the financing of capital improvements for on-farm irrigation systems

Funding source Programs	*How provide assistance*
Friant Waterline	Mailed to our landowner/water users

The Friant Water Users Authority (which the District financially supports) has compiled and maintains lists of organizations providing financial assistance and on-farm water management. These lists include organizations providing loans, grants, and cost sharing. Water users within the District are notified annually regarding the availability of these lists by publishing a notice in the "Irrigation Tech-Line".

4. Incentive pricing

Structure of incentive pricing	*Related goal*
Measure water delivered per acre-foot	Water users pay for water used

District water is priced to provide incentive to use water conservatively while preserving groundwater resources. The incentive pricing program for Kern-Tulare includes three charges - a special assessment (per acre), a standby charge (per acre), and a water toll (per acre-foot). These charges are reviewed annually. The District provides monthly water delivery data to their water users to allow them to monitor their water use and irrigation efficiency.

5. a) Line or pipe ditches and canals

Canal/Lateral (Reach)	*Type of Improvement*	*Number of Miles in Reach*	*Estimated Seepage (AF/Y)*	*Accomplished/ Planned Date*
NA – PIPED SYSTEM				

Over the past 10 years, the District has lined one of its reservoirs with diatomaceous earth and compacted the bottom of another to reduce seepages losses. District staff continues to monitor reservoir levels for indications of increased seepage.

b) Construct regulatory reservoirs

Reservoir Name	*Annual Spill in Section (AF/Y)*	*Estimated Spill Recovery (AF/Y)*	*Accomplished/ Planned Date*
Avenue 24 Reservoir	N/A	N/A	N/A
Big Four Reservoir	N/A	N/A	N/A
Cecil Reservoir	N/A	N/A	N/A

Over the past 10 years, the District has significantly expanded its reservoir capacity at two of its four reservoirs. All District reservoir levels are monitored with a SCADA system. The District has nevered spilled water from any of its reservoirs.

6. Increase flexibility in water ordering by, and delivery to, water users
See Attachment B, contractor 'agricultural water order' form
The District added VFD's at the Avenue 36 Pumping Plant and the Elmo Pumping Plant. In addition, the District added SCADA to the Elmo Pumping Plant. These revisions will further increase landowner flexibility in water ordering.

7. Construct and operate district spill and tailwater recovery systems
NA - Nearly all crops within the District are irrigated using the drip or micro-sprinkler irrigation method. This high percentage of low volume irrigation practices results in a very high irrigation efficiency, which does not require spill or tailwater recovery systems.

8. Plan to measure outflow.
NA – no outflow

9. Optimize conjunctive use of surface and ground water
Expansion of the District's conjunctive use program has become necessary due to the reduced reliability of the District's contract water supplies from the delta. This reduced water supply will lead to inadequate water supplies to permanent crops during dry years and degradation of groundwater resources. These concerns have prompted the need for the District to pursue groundwater banking programs to re-regulate District contract water supplies. The Districts continued with implementation of the North Kern Banking Program and the Rosedale-Rio Bravo Banking Program. The Districts also investigated implementation of a groundwater banking program along the White River within the boundaries of the Districts.

In addition, the District's distribution system is inadequate to fully satisfy irrigation demands and water deliveries must be prorated during the summer months. As a result of these prorates, water users rely upon privately owned wells, even in the wettest of years. By increasing the delivery capability of the distribution system, the annual extraction from privately owned wells could be reduced during years of adequate District imported water supplies. This reduction in groundwater pumping will serve to improve groundwater conditions in the region and reduce the cost to water users within the District. In 2001, the District prepared a report entitled "Feasibility Study of Expansion of Conjunctive Use Program". This report evaluated irrigation requirements, distribution system capabilities, and groundwater data to evaluate the feasibility of improving the district's distribution system. The District is pursing funding to construct facilities to increase delivery capacity to its service area.

10. Automate canal structures
NA - The District has no canals within its boundaries.

11. Facilitate or promote water customer pump testing and evaluation
The pump test information will be included in future Irrigation Tech-Line issues or other newsletters.

12. Mapping

GIS maps	*Estimated cost (in $1,000s)*				
	2009	*2010*	*2011*	*2012*	*2013*
Layer 1 – Distribution system	39,800				
Layer 2 – Drainage system					
Suggested layers:					
Layer 3 – Ground water information					
Layer 4 – Soils map					
Layer 5 – Natural & cultural resources					
Layer 6 – Problem areas					

C. Provide a 3-Year Budget for Implementing BMPs

1. Amount actually spent during 2008.

BMP #	*BMP Name*	*Actual Expenditure (not including staff time)*	*Staff Hours*
A1	*Measurement*	$0	0
2	*Conservation staff*	$0	0
3	*On-farm evaluations / water delivery info*	$750	0
	Irrigation Scheduling	$305	0
	Water quality	$0	0
	Agricultural Education Program	$7,251	30
4	*Quantity pricing*	$0	20
5	*Policy changes*	$0	10
6	*Contractor's pumps*	$0	10
B1	*Alternative land use*	$0	80
2	*Urban recycled water use*	$0	0
3	*Financing of on-farm improvements*	$0	0
4	*Incentive pricing*	$0	108
5	*Line or pipe canals/install reservoirs*	$0	0
6	*Increase delivery flexibility*	$57,192	80
7	*District spill/tailwater recovery systems*	$0	0
8	*Measure outflow*	$0	0
9	*Optimize conjunctive use*	$2,465,057	200
10	*Automate canal structures*	$0	0
11	*Customer pump testing*	$0	0
12	*Mapping*	$0	0
	Total	$2,538,592	1,006

2. *Projected budget summary for 2009.*

BMP #		BMP Name	Budgeted Expenditure (not including staff time)	Staff Hours
A	1	Measurement	$0	0
	2	Conservation staff	$0	0
	3	On-farm evaluations/water delivery info	$757	0
		Irrigation Scheduling	$308	0
		Water quality	$0	0
		Agricultural Education Program	$7324	35
	4	Quantity pricing	$0	30
	5	Policy changes	$0	15
	6	Contractor's pumps	$0	15
B	1	Alternative land use	$0	90
	2	Urban recycled water use	$0	0
	3	Financing of on-farm improvements	$0	0
	4	Incentive pricing	$0	110
	5	Line or pipe canals/install reservoirs	$0	0
	6	Increase delivery flexibility	$57,775	100
	7	District spill/tailwater recovery systems	$0	0
	8	Measure outflow	$0	0
	9	Optimize conjunctive use	$0	0
	10	Automate canal structures	$0	0
	11	Customer pump testing	$0	0
	12	Mapping	$7,000	400
		Total	$2,571,482	1487

3. *Projected budget summary for 2010.*

BMP #		BMP Name	Budgeted Expenditure (not including staff time)	Staff Hours
A	1	Measurement	$0	0
	2	Conservation staff	$0	0
	3	On-farm evaluations/water delivery info	$764	0
		Irrigation Scheduling	$311	0
		Water quality	$0	0
		Agricultural Education Program	$7,398	40
	4	Quantity pricing	$0	35
	5	Policy changes	$0	20
	6	Contractor's pumps	$0	20

(Continued) BMP #		BMP Name	*Budgeted Expenditure (not including staff time)*	*Staff Hours*
B	1	*Alternative land use*	$0	95
	2	*Urban recycled water use*	$0	0
	3	*Financing of on-farm improvements*	$0	0
	4	*Incentive pricing*	$0	115
	5	*Line or pipe canals/install reservoirs*	$0	0
	6	*Increase delivery flexibility*	$58,364	105
	7	*District spill/tailwater recovery systems*	$0	0
	8	*Measure outflow*	$0	0
	9	*Optimize conjunctive use*	$0	0
	10	*Automate canal structures*	$0	0
	11	*Customer pump testing*	$0	0
	12	*Mapping*	$0	0
		Total	$2,590,637	1,140

~~Section 4: Best Management Practices for Urban Contractors~~

Year of Data	2008

Table 1

Surface Water Supply

2008 Month	Federal Ag Water* (acre-feet)	Federal non-Ag Water. (acre-feet)	State Water (acre-feet)	Local Water (acre-feet)	Other Water (transfer) (acre-feet)	Upslope Drain Water (acre-feet)	Total (acre-feet)
Method	M1			M1			
January	0	0	0	0	0	0	0
February	0	0	0	210	0	0	210
March	0	0	0	1,901	0	0	1,901
April	0	0	0	3,517	0	0	3,517
May	467	0	0	4,702	0	0	5,169
June	4,009	0	0	2,319	0	0	6,328
July	4,404	0	0	3,073	0	0	7,477
August	5,587	0	0	939	0	0	6,526
September	4,870	0	0	0	0	0	4,870
October	2,236	0	0	871	0	0	3,107
November	881	0	0	76	0	0	957
December	73	0	0	216	0	0	289
TOTAL	22,527	0	0	17,824	0	0	40,351

Contractor name

Table 2

Ground Water Supply

2008 Month	District Groundwate (acre-feet)	Private Urban *(acre-feet)	Private Agric *(acre-feet)
Method			E3
January	0	0	123
February	0	0	147
March	0	0	416
April	0	0	892
May	0	0	1,203
June	0	0	1,923
July	0	0	2,608
August	0	0	2,323
September	0	0	1,645
October	0	0	935
November	0	0	735
December	0	0	140
TOTAL	0	0	13,090

*normally estimated

Table 3

Total Water Supply

2008 Month	Surface Water Total (acre-feet)	District Groundwate (acre-feet)	Recycled M&I (acre-feet)	Total District (acre-feet)
Method				
January	0	0	0	0
February	210	0	0	210
March	1,901	0	0	1,901
April	3,517	0	0	3,517
May	5,169	0	0	5,169
June	6,328	0	0	6,328
July	7,477	0	0	7,477
August	6,526	0	0	6,526
September	4,870	0	0	4,870
October	3,107	0	0	3,107
November	957	0	0	957
December	289	0	0	289
TOTAL	40,351	0	0	40,351

*Recycled M&I Wastewater is treated urban wastewater that is used for agriculture.

Table 4

Agricultural Distribution System

2008

Canal, Pipeline, Lateral, Reservoir	**Length** (feet)	**Width** (feet)	**Surface Area** (square feet)	**Precipitation** (acre-feet)	**Evaporation** (acre-feet)	**Spillage** (acre-feet)	**Seepage** (acre-feet)	**Total** (acre-feet)
Piped system	343,200	0	0	0	0	0	0	0
Big 4 Reservoir	950	950	902,500	6	99	0	369	(462)
Cecil Reservoir	750	400	300,000	2	33	0	123	(154)
Avenue 24 Reservc	530	5,300	2,809,000	20	309	0	115	(404)
Section 7 Reservoi	300	300	90,000	1	10	0	37	(46)
	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0
TOTAL				28	451	0	644	221

Table 5

Crop Water Needs

2008 Crop Name	Area (crop acres)	Crop ET (AF/Ac)	Leaching Requiremen (AF/Ac)	Cultural Practices (AF/Ac)	Effective Precipitatio (AF/Ac)	Appl. Crop Water Use (acre-feet)
Alfalfa	321	4.00	0.30	0.00	0.32	1,278
Almonds	1,814	3.02	0.30	0.00	0.25	5,569
Apples	0	3.02	0.30	0.00	0.25	0
Blue Berries	279	1.95	0.30	0.00	0.29	547
Cherries	70	3.02	0.30	0.00	0.25	215
Grapes	5,600	2.07	0.30	0.00	0.19	12,208
Grapefruit	0	3.32	0.30	0.00	0.48	0
Kiwi	199	3.32	0.30	0.00	0.48	625
Lemons	138	3.32	0.30	0.00	0.48	433
Olives	204	3.02	0.30	0.00	0.25	626
Oranges	7,163	3.32	0.30	0.00	0.48	22,492
Persimmons	0	3.02	0.30	0.00	0.25	0
Pistachios	3,093	3.02	0.30	0.00	0.25	9,496
Pomegranites	153	3.02	0.30	0.00	0.25	470
Prunes	32	3.02	0.30	0.00	0.25	98
All other crops	0	0.00	0.00	0.00	0.00	0
Crop Acres	19,066					54,056

Table 6

2008 District Water Inventory

Water Supply	Table 3		40,351
Riparian ET	(Distribution and Drain)	minus	0
Groundwater recharge	intentional - ponds, injection	minus	0
Seepage	Table 4	minus	644
Evaporation - Precipitation	Table 4	minus	423
Sales to Non-Agric customers	Table 4	minus	610
Transfers/trades/wheeling		**plus/minus**	0
Water Available for sale to customers			38,674
2008 Actual Agricultural Water Sales	From District Sales Records		40,482
Private Groundwater	Table 2	plus	13,090
Crop Water Needs	Table 5	minus	54,056
Drainwater outflow	(tail and tile not recycled)	minus	0
Percolation from Agricultural Land	(calculated)		(484)

Table 7

Influence on Groundwater and Saline Sink

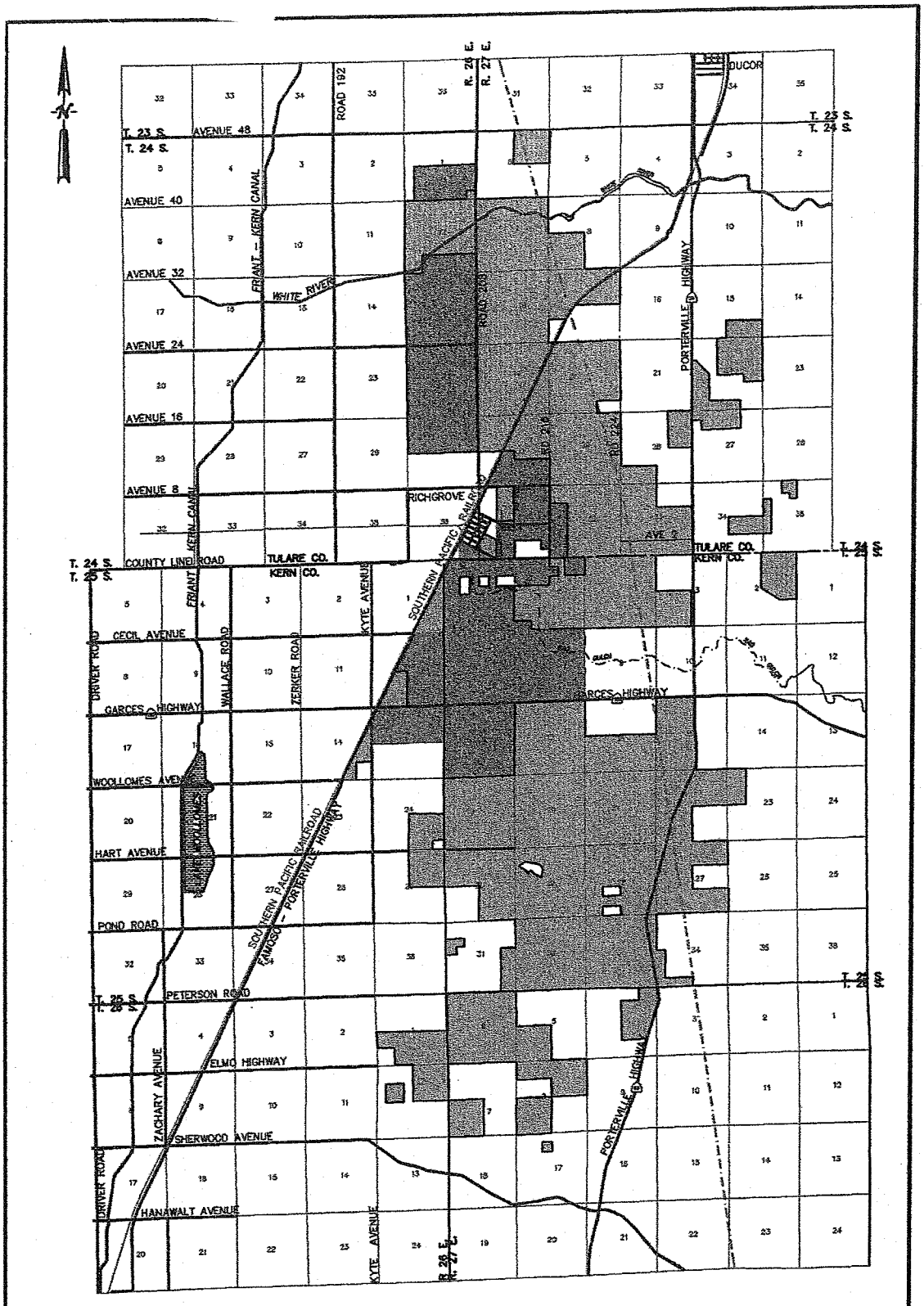
2008

Agric Land Deep Perc + Seepage + Recharge - Groundwater Pumping = District Influence	644
Estimated actual change in ground water storage, including natural recharge)	0
Irrigated Acres (from Table 5)	19,066
Irrigated acres over a perched water table	0
Irrigated acres draining to a saline sink	0
Portion of percolation from agri seeping to a perched water table	0
Portion of percolation from agri seeping to a saline sink	0
Portion of On-Farm Drain water flowing to a perched water table/saline sink	0
Portion of Dist. Sys. seep/leaks/spills to perched water table/saline sink	0
Total (AF) flowing to a perched water table and saline sink	0

Table 8

Annual Water Quantities Delivered Under Each Right or Contract

Year	Federal Ag Water* (acre-feet)	Federal non-Ag Water. (acre-feet)	State Water (acre-feet)	Local Water (acre-feet)	Other Water (transfer) (acre-feet)	Upslope Drain Water (acre-feet)	Total (acre-feet)
1999	14,195	0	0	27,250	0	0	41,445
2000	21,252	0	0	23,000	0	0	44,252
2001	31,721	0	0	13,350	0	0	45,071
2002	28,141	0	0	9,958	0	0	38,099
2003	13,613	0	0	23,000	0	0	36,613
2004	24,094	0	0	14,274	0	0	38,368
2005	17,541	0	0	19,707	0	0	37,248
2006	35,167	0	0	17,250	0	0	52,417
2007	37,200	0	0	8,424	0	0	45,624
2008	22,527	0	0	17,824	0	0	40,351
Total	245,451	0	0	174,037	0	0	419,488
Average	24,545	0	0	17,404	0	0	41,949



KERN–TULARE WATER DISTRICT
RAG GULCH WATER DISTRICT

LEGEND

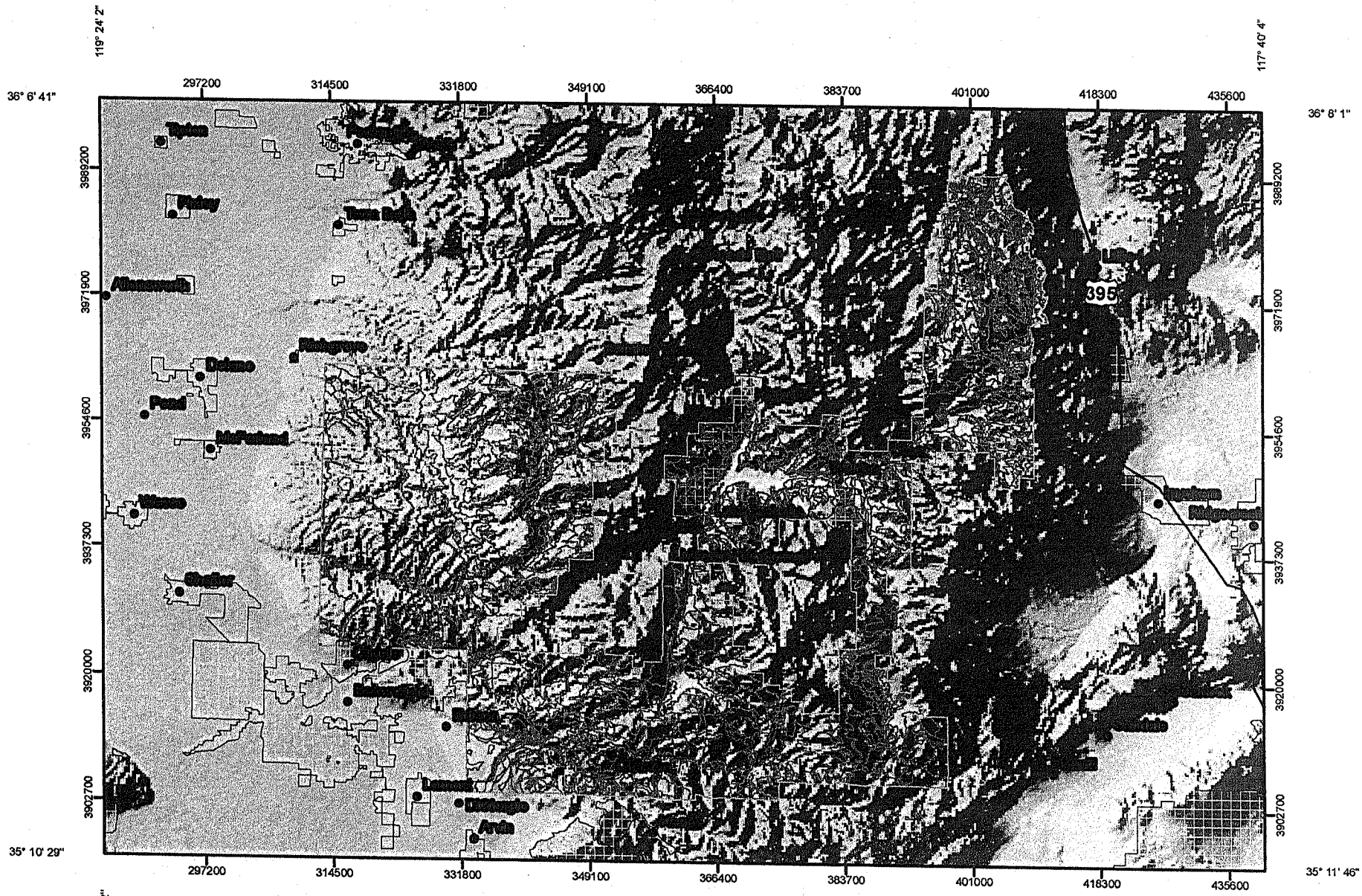
KERN–TULARE WATER DISTRICT

RAG GULCH WATER DISTRICT

February 2003

FIGURE 1

Soil Map—Kern County, Northeastern Part a[illegible]outheastern Part of Tulare County, California



Map Scale: 1:744,000 if printed on A size (8.5" x 11") sheet.

N

0 10,000 20,000 40,000 60,000 Meters

0 40,000 80,000 160,000 240,000 Feet

USDA Natural Resources Conservation Service

Web Soil Survey 2.2
National Cooperative Soil Survey

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Units
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Gully
- Short Steep Slope
- Other

Political Features
- Urban Areas
- Cities

Water Features
- Oceans

Transportation
- Interstate Highways
- US Routes
- Major Roads

MAP INFORMATION

Map Scale: 1:744,000 if printed on A size (8.5" × 11") sheet.

The soil surveys that comprise your AOI were mapped at 1:24,000.

Please rely on the bar scale on each map sheet for accurate map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: UTM Zone 11N NAD83

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Kern County, Northeastern Part and Southeastern Part of Tulare County, California
Survey Area Data: Version 5, Jan 16, 2008

Date(s) aerial images were photographed: Data not available.

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Kern County, Northeastern Part and Southeastern Part of Tulare County, California (CA668)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
115	Chanac clay loam, 15 to 30 percent slopes	3,360.5	0.4%
128	Pits-Delano-Oil-Waste land complex, 1 to 9 percent slopes	534.4	0.1%
136	Hesperia sandy loam, 2 to 9 percent slopes	6.0	0.0%
138	Hesperia sandy loam, 0 to 2 percent slopes	2,047.1	0.2%
139	Riverwash	232.8	0.0%
143	Calicreek loamy coarse sand, 0 to 2 percent slopes, rarely flooded	419.7	0.0%
144	Calicreek sandy loam, 0 to 2 percent slopes, occasionally flooded	1,558.8	0.2%
145	Delano loamy sand, 0 to 2 percent slopes	5,189.7	0.6%
146	Delano sandy loam, 1 to 5 percent slopes	2,441.9	0.3%
147	Chanac clay loam, 2 to 9 percent slopes	361.6	0.0%
148	Delano sandy clay loam, 0 to 2 percent slopes	360.4	0.0%
149	Delano sandy loam, 5 to 9 percent slopes	429.5	0.0%
150	Pits and dumps	51.8	0.0%
152	Pleito gravelly sandy clay loam, 2 to 5 percent slopes	2,771.6	0.3%
153	Chanac clay loam, 9 to 15 percent slopes	400.8	0.0%
154	Dams	56.2	0.0%
166	Delano-Urban land complex, 0 to 2 percent slopes	293.0	0.0%
174	Xeric Torriorthents-Calcic Haploxerepts association, 15 to 60 percent slopes	15,934.1	1.7%
176	Elkhills sandy loam, 9 to 50 percent slopes, eroded	116.6	0.0%
177	Chanac-Torriorthents, stratified association, 15 to 50 percent slopes	5,086.9	0.6%
178	Delano-Cuyama-Premier complex, 5 to 30 percent slopes	2,040.6	0.2%
179	Torriorthents, stratified, eroded-Elkhills complex, 9 to 50 percent slopes	1,039.3	0.1%
184	Cuyama sandy loam, 2 to 5 percent slopes	976.1	0.1%
185	Brecken-Cuyama-Pleito complex, 15 to 60 percent slopes	12,634.4	1.4%
186	Cuyama loam, 9 to 15 percent slopes	20.1	0.0%
187	Trigo-Chanac association, 15 to 60 percent slopes	7,799.8	0.9%
188	Tweedy-Tollhouse-Locobill complex, 9 to 30 percent slopes	1,904.7	0.2%
189	Tweedy-Walong association, 30 to 50 percent slopes	14,881.9	1.6%
192	Chanac-Pleito complex, 5 to 30 percent slopes	42,858.1	4.7%
193	Chanac-Pleito complex, 2 to 5 percent slopes	4,379.9	0.5%

Kern County, Northeastern Part and Southeastern Part of Tulare County, California (CA668)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
194	Pleito-Delvar complex, 2 to 15 percent slopes	2,498.2	0.3%
195	Centerville-Delvar complex, 9 to 30 percent slopes	5,025.1	0.6%
196	Exeter sandy loam, 2 to 9 percent slopes	801.5	0.1%
197	Nord fine sandy loam, 0 to 2 percent slopes, rarely flooded	469.2	0.1%
198	Centerville-Delvar complex, 2 to 9 percent slopes	147.0	0.0%
199	Exeter sandy loam, 0 to 2 percent slopes	183.9	0.0%
200	Urban land-Delano complex, 0 to 2 percent slopes	12.7	0.0%
201	Pleito-Chanac-Raggulch complex, 5 to 30 percent slopes	14,907.4	1.6%
205	Pleito-Trigo-Chanac complex, 15 to 50 percent slopes	20,248.3	2.2%
207	Whitewolf loamy sand, 0 to 2 percent slopes, rarely flooded	231.5	0.0%
209	Whitewolf loamy sand, 0 to 2 percent slopes, occasionally flooded	1,592.1	0.2%
210	Kernfork fine sandy loam, 0 to 2 percent slopes, occasionally flooded	4,321.9	0.5%
212	Kernfork fine sandy loam, 0 to 2 percent slopes, frequently flooded	1,158.2	0.1%
213	Calicreek loamy coarse sand, 0 to 2 percent slopes, occasionally flooded	2,200.1	0.2%
215	Kelval loamy sand, 0 to 2 percent slopes, occasionally flooded	632.9	0.1%
216	Inyo-Riverwash complex, 0 to 5 percent slopes, frequently flooded	1,690.3	0.2%
217	Whitewolf-Riverwash complex, 0 to 5 percent slopes, frequently flooded	1,064.3	0.1%
220	Aquents-Aquolls-Riverwash complex, 0 to 5 percent slopes, flooded	3,410.1	0.4%
222	Kelval fine sandy loam, 0 to 2 percent slopes, occasionally flooded	2,071.2	0.2%
223	Kelval stony sandy loam, 0 to 2 percent slopes, occasionally flooded	1,238.5	0.1%
224	Inyo gravelly loamy coarse sand, 0 to 9 percent slopes, occasionally flooded	5,651.3	0.6%
238	Cinco gravelly loamy sand, 50 to 75 percent slopes	561.1	0.1%
240	Dune land	441.0	0.0%
241	Inyo gravelly loamy coarse sand, 0 to 5 percent slopes	3,301.8	0.4%
242	Inyo gravelly loamy coarse sand, 5 to 15 percent slopes	6,726.8	0.7%
243	Kernfork loam, saline-sodic, 0 to 2 percent slopes, occasionally flooded	395.3	0.0%
245	Chollawell gravelly loamy coarse sand, 2 to 5 percent slopes	3,956.4	0.4%
246	Chollawell gravelly loamy coarse sand, 5 to 15 percent slopes	5,653.3	0.6%
247	Inyo-Tips-Rock outcrop complex, 5 to 30 percent slopes	382.9	0.0%

Kern County, Northeastern Part and Southeastern Part of Tulare County, California (CA668)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
249	Hoffman-Rock outcrop complex, 30 to 50 percent slopes	727.3	0.1%
250	Hoffman-Tips-Pilotwell association, 15 to 50 percent slopes	7,427.9	0.8%
253	Sorrell-Martee-Rock outcrop complex, 30 to 60 percent slopes	10,337.9	1.1%
254	Martee-Rock outcrop complex, 30 to 60 percent slopes	3,098.1	0.3%
255	Kernfork complex, 0 to 5 percent slopes	253.9	0.0%
257	Hoffman-Tips-Rock outcrop association, 20 to 45 percent slopes	3,702.4	0.4%
259	Cowspring gravelly loamy coarse sand, 15 to 50 percent slopes	899.1	0.1%
260	Cowspring-Tips-Rock outcrop complex, 30 to 50 percent slopes	261.6	0.0%
261	Blasingame-Arujo-Cieneba association, 15 to 45 percent slopes	10,943.4	1.2%
264	Arujo-Walong-Tunis association, 9 to 30 percent slopes	26,798.2	2.9%
265	Arujo sandy loam, 9 to 15 percent slopes	4,045.9	0.4%
266	Tunis-Rock outcrop complex, 30 to 50 percent slopes	1,524.4	0.2%
267	Cieneba-Vista-Rock outcrop complex, 30 to 60 percent slopes	22,373.1	2.4%
268	Tunis-Tollhouse-Sorrell association, 30 to 75 percent slopes	14,400.0	1.6%
269	Tollhouse-Sorrell-Rock outcrop complex, 30 to 60 percent slopes	8,209.4	0.9%
270	Locobill-Backcanyon-Sesame complex, 20 to 60 percent slopes	9,645.4	1.1%
271	Walong-Tunis-Rock outcrop association, 30 to 60 percent slopes	12,347.2	1.4%
272	Tollhouse-Edmundston-Sorrell association, 15 to 50 percent slopes	5,882.1	0.6%
274	Sesame-Tweedy-Rock outcrop association, 30 to 60 percent slopes	9,605.9	1.1%
275	Strahle-Sesame-Tweedy association, 30 to 75 percent slopes	8,812.0	1.0%
276	Tips-Hoffman-Cinco association, 30 to 60 percent slopes	2,202.3	0.2%
277	Feethill-Vista-Walong association, 15 to 60 percent slopes	25,369.3	2.8%
279	Strahle-Rock outcrop-Sesame association, 30 to 60 percent slopes	3,161.6	0.3%
280	Tollhouse-Martee-Edmundston association, 30 to 50 percent slopes	5,314.1	0.6%
281	Havala-Walong-Kernfork association, 1 to 20 percent slopes	6,000.3	0.7%
282	Tollhouse-Sesame-Friant association, 30 to 60 percent slopes	5,946.8	0.7%

Kern County, Northeastern Part and Southeastern Part of Tulare County, California (CA668)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
283	Tollhouse-Martee-Rock outcrop complex, 30 to 75 percent slopes	5,030.7	0.6%
284	Tollhouse-Rock outcrop complex, 30 to 60 percent slopes	4,210.0	0.5%
285	Inyo-Kelval complex, 0 to 5 percent slopes, occasionally flooded	4,586.8	0.5%
286	Tollhouse-Tweedy-Locobill association, 30 to 60 percent slopes	8,254.2	0.9%
287	Tweedy-Strahle association, 40 to 75 percent slopes	8,900.8	1.0%
288	Sorrell-Arujo-Rock outcrop association, 9 to 50 percent slopes	7,696.3	0.8%
289	Erskine-Hyte-Rock outcrop association, 30 to 60 percent slopes	8,342.6	0.9%
294	Edmundston-Tweedy-Walong association, 30 to 60 percent slopes	9,826.5	1.1%
295	Tweedy-Tunis-Rankor association, 30 to 75 percent slopes	24,419.9	2.7%
296	Arujo-Walong-Tunis association, 30 to 75 percent slopes	22,592.5	2.5%
297	Walong-Blasingame-Rock outcrop association, 30 to 60 percent slopes	20,315.4	2.2%
298	Arujo-Feethill-Sesame association, 15 to 45 percent slopes	31,134.6	3.4%
299	Arujo-Feethill-Sesame association, 30 to 60 percent slopes	6,270.4	0.7%
300	Stineway-Kiscove association, 30 to 60 percent slopes	6,800.0	0.7%
301	Feethill-Vista-Rock outcrop complex, 9 to 30 percent slopes	3,303.9	0.4%
302	Feethill-Cibo-Cieneba complex, 15 to 30 percent slopes	3,674.0	0.4%
303	Steuber sandy loam, 0 to 5 percent slopes	1,749.7	0.2%
304	Cibo clay, 30 to 50 percent slopes	969.5	0.1%
305	Chanac-Pleito-Premier association, 20 to 60 percent slopes	38,960.5	4.3%
306	Xerofluvents, occasionally flooded-Riverwash complex, 0 to 5 percent slopes	2,306.4	0.3%
307	Typic Xeropsamments, 0 to 2 percent slopes	484.5	0.1%
308	Rankor-Edmundston-Tweedy complex, 5 to 30 percent slopes	981.2	0.1%
309	Rankor-Edmundston-Tweedy complex, 30 to 60 percent slopes	1,484.4	0.2%
310	Stineway-Kiscove association, 5 to 30 percent slopes	932.4	0.1%
311	Xerorthents-Rock outcrop complex, 30 to 75 percent slopes	203.7	0.0%
312	Havala sandy loam, 2 to 5 percent slopes	207.4	0.0%
313	Dumps	245.6	0.0%
314	Premier-Haplodurids complex, 9 to 30 percent slopes	4,479.7	0.5%

Kern County, Northeastern Part and Southeastern Part of Tulare County, California (CA668)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
315	Premier-Haplodurids complex, 2 to 9 percent slopes	149.9	0.0%
316	Premier coarse sandy loam, 5 to 9 percent slopes	362.7	0.0%
317	Premier coarse sandy loam, 2 to 5 percent slopes	982.0	0.1%
320	Southlake gravelly sandy loam, 2 to 15 percent slopes	1,894.6	0.2%
325	Walong sandy loam, 15 to 30 percent slopes	74.5	0.0%
326	Walong sandy loam, 30 to 50 percent slopes	91.9	0.0%
330	Kernville-Faycreek-Rock outcrop complex, 30 to 75 percent slopes	13,237.8	1.4%
350	Southlake-Goodale complex, 5 to 15 percent slopes	1,118.2	0.1%
352	Goodale-Riverwash complex, 0 to 5 percent slopes	578.0	0.1%
360	Kernville-Hogeye-Southlake complex, 5 to 30 percent slopes	519.1	0.1%
380	Delvar-Pleito complex, 9 to 30 percent slopes	6,855.3	0.8%
407	Centerville clay, 2 to 5 percent slopes	194.4	0.0%
410	Stineway-Kiscove-Urban land complex, 0 to 30 percent slopes	127.5	0.0%
411	Delvar clay loam, 2 to 9 percent slopes	1.7	0.0%
412	Chollawell-Urban land complex, 0 to 15 percent slopes	287.8	0.0%
417	Southlake-Southlake, gravelly-Goodale-Urban land complex, 0 to 15 percent slopes	83.0	0.0%
420	Southlake-Urban land complex, 0 to 15 percent slopes	506.1	0.1%
422	Kelval-Urban land complex, 0 to 2 percent slopes	321.5	0.0%
423	Auberry-Crouch-Rock outcrop complex, 15 to 50 percent slopes	736.2	0.1%
424	Inyo-Urban land complex, 0 to 9 percent slopes	237.0	0.0%
430	Friant-Rock outcrop complex, 15 to 75 percent slopes	324.4	0.0%
432	Alberti-Urban land complex, 0 to 30 percent slopes	145.1	0.0%
441	Inyo-Urban land complex, 0 to 5 percent slopes	460.5	0.1%
442	Inyo-Urban land complex, 0 to 15 percent slopes	180.1	0.0%
445	Chollawell-Urban land complex, 0 to 5 percent slopes	831.0	0.1%
450	Southlake-Goodale-Urban land complex, 0 to 15 percent slopes	776.6	0.1%
460	Kernville-Hogeye-Southlake-Urban land complex, 0 to 30 percent slopes	386.3	0.0%
465	Arujo-Urban land complex, 0 to 15 percent slopes	119.8	0.0%
485	Inyo-Kelval-Urban land complex, 0 to 5 percent slopes	199.1	0.0%
488	Tweedy-Tollhouse-Locobill-Urban land complex, 0 to 30 percent slopes	218.3	0.0%
501	Hyte-Erskine-Sorrell association, 30 to 60 percent slopes	5,880.6	0.6%
503	Tips-Erskine-Rock outcrop association, 30 to 60 percent slopes	6,605.2	0.7%
505	Chollawell gravelly loamy coarse sand, 5 to 20 percent slopes	3,070.5	0.3%

Kern County, Northeastern Part and Southeastern Part of Tulare County, California (CA668)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
507	Xyno-Canebrake-Pilotwell association, dry, 30 to 60 percent slopes	9,396.7	1.0%
508	Pilotwell-Xyno-Rock outcrop association, 30 to 60 percent slopes	4,797.6	0.5%
509	Xyno-Faycreek-Rock outcrop complex, 30 to 60 percent slopes	15,528.4	1.7%
510	Xyno-Canebrake-Pilotwell association, 30 to 60 percent slopes	4,415.6	0.5%
512	Chollawell gravelly sandy loam, cobbly substratum, 5 to 15 percent slopes	2,602.4	0.3%
514	Chollawell-Inyo complex, 5 to 15 percent slopes	5,493.7	0.6%
515	Scodie-Canebrake-Xyno association, 30 to 60 percent slopes	6,077.5	0.7%
516	Xyno-Rock outcrop-Canebrake association, 30 to 60 percent slopes	8,615.0	0.9%
517	Southlake-Southlake, gravelly-Goodale complex, 5 to 15 percent slopes	3,237.7	0.4%
518	Backcanyon-Rock outcrop complex, 15 to 50 percent slopes	625.4	0.1%
520	Kernville-Hogeye-Rock outcrop complex, 15 to 30 percent slopes	2,654.9	0.3%
523	Kernville-Faycreek-Rock outcrop association, 30 to 60 percent slopes	5,106.4	0.6%
525	Hungrygulch-Kernville-Hogeye association, 30 to 60 percent slopes	794.3	0.1%
530	Alberti complex, 15 to 50 percent slopes	2,229.5	0.2%
531	Tweedy-Erskine-Alberti association, 30 to 60 percent slopes	450.8	0.0%
532	Alberti gravelly loam, 5 to 30 percent slopes	37.1	0.0%
540	Canebrake-Lachim complex, 30 to 60 percent slopes	7,804.6	0.9%
541	Canebrake-Lachim-Rock outcrop complex, 30 to 60 percent slopes	5,881.3	0.6%
543	Wortley-Indiano-Rock outcrop complex, 30 to 60 percent slopes	6,660.6	0.7%
544	Xeric Haplargids-Lithic Xeric Haplargids complex, mesic, 5 to 30 percent slopes	966.3	0.1%
545	Sacatar-Canebrake complex, 5 to 30 percent slopes	2,115.5	0.2%
549	Tunawee-Rock outcrop complex, 15 to 40 percent slopes	4,170.6	0.5%
550	Kenypeak-Rubble land-Rock outcrop complex, 60 to 100 percent slopes.	1,307.8	0.1%
551	Tunawee bouldery loamy coarse sand, 15 to 50 percent slopes	4,313.5	0.5%
552	Kenypeak-Torriorthentic Haploxerolls association, skeletal, 30 to 60 percent slopes	7,164.1	0.8%
553	Tibbcreek gravelly loam, 5 to 30 percent slopes	1,180.5	0.1%
554	Deerspring fine sandy loam, 0 to 5 percent slopes	676.3	0.1%

Kern County, Northeastern Part and Southeastern Part of Tulare County, California (CA668)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
555	Cumulic Endoaquolls, frigid, 0 to 5 percent slopes	431.6	0.0%
556	Toll loamy coarse sand, 2 to 9 percent slopes	3,445.3	0.4%
557	Scodie-Canebrake-Deadfoot complex, 30 to 60 percent slopes	29,375.7	3.2%
558	Indiano-Wortley complex, 30 to 60 percent slopes	1,802.7	0.2%
560	Sacatar-Wortley-Calpine complex, 5 to 30 percent slopes	15,825.5	1.7%
561	Scodie-Sacatar-Canebrake complex, 5 to 30 percent slopes	2,743.8	0.3%
562	Deerspring loam, partially drained, 0 to 5 percent slopes	85.2	0.0%
570	Deadfoot-Scodie-Rock outcrop complex, 30 to 60 percent slopes	11,572.5	1.3%
590	Xyno-Canebrake-Pilotwell complex, 5 to 30 percent slopes	2,283.7	0.2%
591	Xyno-Canebrake-Rock outcrop association, 30 to 60 percent slopes	2,263.9	0.2%
599	Rock outcrop	66.3	0.0%
610	Hyte-Erskine complex, 5 to 30 percent slopes	314.6	0.0%
650	Stineway-Kiscove-Rock outcrop association, 30 to 75 percent slopes	6,846.3	0.7%
3250	Jawbone association, 30 to 60 percent slopes	568.1	0.1%
4432	Koehn association, 2 to 4 percent slopes	43.2	0.0%
5201	Wingap-Pinyonpeak association, 8 to 30 percent slopes	4,009.2	0.4%
5210	Grandora-Pinyonpeak association, 8 to 60 percent slopes	2,275.9	0.2%
6001	Goldpeak-Pinyonpeak-Wingap complex, 2 to 30 percent slopes	150.4	0.0%
W	Water	8,797.8	1.0%
Totals for Area of Interest		**913,577.4**	**100.0%**

KERN-TULARE WATER DISTRICT

RULES AND REGULATIONS
FOR
SALE AND DISTRIBUTION OF WATER
(Wat. Code, § 35423)

ARTICLE I.
DEFINITIONS

1.00. Introduction.

The words and phrases defined in this article shall govern the interpretation of these Rules unless the context otherwise requires.

1.01. Agreement 76-61.

"Agreement 76-61" means the agreement between the City and the District for the sale of Kern River water and any amendments thereto or extensions thereof.

1.02. Agricultural Use.

"Agricultural Use" means the use of water primarily for the production of plant crops or livestock for market, including any use incidental thereto for domestic or stock watering purposes.

1.03. Applicant.

"Applicant" means a holder of title to land within the Service Area, or his duly authorized agent, who makes application to the District for the delivery of water for such land.

1.04. Board.

"Board" means the Board of Directors of the District.

1.05. City.

"City" means the City of Bakersfield, a California municipal corporation.

1.06. CVP Water.

"CVP Water" means water deliverable to the District under the terms of the CVP Water Supply Contract and any other water available to the District which is subject to Reclamation Law.

1.07. CVP Water Supply Contract.

"CVP Water Supply Contract" means the contract dated February 29, 1996 among the United States, the State and the District designated as Interim Contract No. 14-06-200-8601A-IR1 and any amendments, extensions, renewals or replacements thereto.

1.08. District.

"District" means Kern-Tulare Water District, a California water district.

1.09. Kern River Water.

"Kern River Water" means water deliverable to the District under Agreement 76-61 and any other water available to the District which is not subject to Reclamation Law.

1.10. Reclamation Law.

"Reclamation Law" means the Act of June 17, 1902 (32 Stat. 388), all Acts amendatory or supplementary thereto, and all current rules implementing such Acts (43 CFR Part 426).

1.11. Rules.

"Rules" means these rules and regulations for the sale and distribution of water.

1.12. Service Area.

"Service Area" means the lands in the District which are subject to standby charges levied and assessed by the District.

1.13. State.

"State" means the State of California, acting by and through its Department of Water Resources.

1.14. United States.

"United States" means the United States of America, acting by and through its Department of the Interior, Bureau of Reclamation.

1.15. Water User.

"Water User" means a holder of title to land, or his authorized agent, who receives water service from the District.

1.16. Year.

"Year" means the calendar year beginning January 1 and ending December 31.

ARTICLE II.
ALLOCATION AND USE OF WATER

2.00. Applications.

A Water User must file an application with the District on forms provided by the District to obtain water service from the District. Each application must be signed by the Applicant and state (a) that the Applicant desires the delivery of water during the Year and (b) the name, address, telephone number and any facsimile number of the person authorized to order water and receive water charges and other notices from the District. Any Applicant who wishes to authorize an agent to make application to the District on the Applicant's behalf shall do so before the agent makes application to the District. The authorization shall be in a form provided by the District and filed with the District before or with the application.

2.01. Allocation of Water.

(a) General.

If the District's anticipated supply of water for the Year will not be sufficient to meet the applications filed by Applicants under section 2.00 hereof, the District will allocate such supply among all Applicants pro rata on the basis of the gross assessable acreage of each Applicant within the Service Area.

(b) Reallocation of Kern River Water.

To the extent that the District has a sufficient supply of Water, Kern River Water will be reallocated among Applicants with lands in the Service Area

that (1) are not eligible to receive water service under Reclamation Law, (2) are eligible to receive water service under Reclamation Law but are subject to full cost charges, and (3) are eligible to receive water service under Reclamation Law at less than full cost charges provided, however, that as a condition of any such reallocation, each Applicant who receives a greater allocation of Kern River Water under such reallocation than his pro rata share shall agree to pay to the District the surcharge established by the District under section 5.03 hereof so that each Applicant that receives a lesser allocation of Kern River Water than his pro rata share is not required to pay the District more than he would have been obligated to pay the District if he would have received his pro rata share of Kern River Water.

(c) Allocation Adjustments.

The allocations made under this section shall be subject to adjustment, either up or down, to reflect (1) the actual amount of CVP Water and Kern River Water that becomes available to the District in the Year in which such water is to be delivered and (2) any changes in the allocations of CVP Water to Applicants as a result of a change in the eligibility of an Applicant to receive water service under Reclamation Law. Any adjustment will be made using the criteria set forth in this section.

(d) Allocation of Water in Groundwater Storage.

The District shall not be obligated to allocate any of its water held in groundwater storage unless the Board determines to extract water from groundwater storage and allocate such water to Applicants.

2.02. Use of Water.

Water delivered by the District to a Water User shall only be used by the Water User for an Agricultural Use in the Service Area unless the District first consents in writing to a different use or a different place of use. None of the water allocated to a Water User may be used in any Year other than the Year for which the allocation has been made.

2.03. Assignment of Water Prohibited.

A Water User may not assign his allocation of CVP Water or Kern River Water to any other person without the prior written consent of the General Manager.

ARTICLE III.
ALLOCATION OF CAPACITY IN DISTRICT FACILITIES

3.00. Allocation of Capacity.

The General Manager shall determine the capacity of District water distribution facilities and, if required, allocate such capacity among the Water Users. If the General Manager is required to allocate the capacity of any District distribution facility, each Water User's share of the capacity of the facility shall be equal to the capacity of such facility multiplied by a fraction, the numerator of which is the gross assessable acreage of the lands owned by the Water User within the Service Area which can be served through such facility and the denominator of which is the gross assessable acreage of the lands of all Water Users in the Service Area which can be served through such facility.

3.01. Assignment of Capacity Prohibited.

A Water User may not assign his right to the use of any District facility for the delivery of water in the Service Area without the prior written consent of the General Manager.

ARTICLE IV.
DELIVERY OF WATER

4.00. Metered Service at Turnouts.

District water service will be provided through a District approved structure which contains a meter.

4.01. Turnouts Which Serve Several Water Users.

If the District approves water service to more than one Water User through a turnout, all Water Users being served through the turnout will be required to enter into a separate written agreement with the District which, among other things, designates one person to be responsible for ordering water from the District, specifies the manner in which water charges are to be timely paid, and specifies the manner in which the District will suspend the delivery of water if any Water User served through such turnout becomes delinquent in the payment of water charges, standby charges, or special assessments.

4.02. Delivery of Water.

Each Water User shall notify the District's operations office by 9:00 a.m. on the day prior to the day he desires to have water turned on, turned off, or the rate of flow

changed.

4.03. Suspension of Delivery of Water.

The District shall suspend the delivery of water to (a) any Water User who becomes delinquent in the payment of his water charges, standby charges, or special assessments and (b) all Water Users served through a common turnout if any Water User served through the turnout becomes delinquent in the payment of his water charges, standby charges, or special assessments.

ARTICLE V.
WATER CHARGES AND ASSESSMENTS

5.00. Adoption of Budget.

The General Manager of the District will present a proposed budget for the ensuing Year to the Board for its review and consideration at the regular meeting of the Board in July of the Year prior to the Year in which water is to be delivered and the Board shall adopt a resolution declaring (a) its intent to adopt a budget for the ensuing Year, (b) its intent to fix and collect standby charges and water charges, and (c) the necessity to levy special assessments, if any, and noticing a public hearing if a public hearing is required by law. The budget for the ensuing Year shall be adopted at the next regular meeting of the Board unless the Board determines otherwise.

5.01. Establishment of Water Charges and Assessments.

(a) Water Charges.

The Board shall determine the proposed amount of the water charges under Water Code section 35470 at the regular meeting of the Board in July. The water charges shall be in an amount at least sufficient to cover the variable cost of purchasing CVP Water and Kern River Water and delivering such water to the Water Users. The amount of the water charges shall be fixed at the next regular meeting of the Board unless the Board determines otherwise.

(b) Standby Charges.

The Board shall determine the proposed amount of any standby charges to be levied and assessed under Water Code section 35470 at the regular meeting of the Board in July. Any standby charges shall be levied and assessed on all lands within the Service Area. The amount of any standby charges shall be fixed at the next regular meeting of the Board unless the Board determines otherwise.

(c) Special Assessments.

The Board shall determine the proposed amount of any special assessments to be levied during the Year under Article 3 (commencing with section 35539) of Chapter 2.5 of Part 5 of Division 13 of the Water Code at the regular meeting of the Board in July. The amount of any special assessments shall be fixed at the next regular meeting of the Board unless the Board determines otherwise.

5.02. Payment of Water Charges.

The water charges shall be payable in monthly installments and based on water usage. The District will send the Water User an invoice by the 5th day of each month for the water charges incurred by the Water User during the preceding month. The amount invoiced shall be due and payable as of the date of the invoice and shall become delinquent if not paid to and received by the District on or before 5:00 p.m., local time, on the 25th day of such month. If the amount invoiced becomes delinquent, a penalty of 10% of such amount shall immediately be due and payable to the District and interest on the amount invoiced shall accrue at the rate of 0.05% per day from the delinquency date.

5.03. Payment of Charges Under Reclamation Law.

The District will, to the extent possible, bill any full cost charges under Reclamation Law to the Water User in the Water User's monthly statement of water charges. At the end of each Year the District will reconcile all water charges, including any surcharge due as a result of the reallocation of Kern River Water in the manner provided in section 2.01(b) hereof, and send each Water User a supplemental billing by February 5th of the ensuing Year showing the amount of any additional water charges. The amount billed shall be due and payable on the date of billing and shall become delinquent on February 25th next following. If the amount becomes delinquent, such amount shall be subject to a penalty and shall accrue interest like delinquent water charges under section 5.02 hereof.

5.04. Payment of Assessments.

(a) Standby Charges.

Any standby charges levied and assessed under Water Code section 35470 shall be due and payable and shall become delinquent in the manner provided in the Board's resolution which fixes the standby charges. If the standby charges become delinquent, a penalty of 10% of the amount of the standby charges shall immediately be due and payable to the District. Interest on the amount of the standby charges and the penalty

shall accrue after the date of sale of the delinquent land to the District at the rate of 9% per annum, but not less than three-fourths of 1% for any portion of a month.

(b) Special Assessments.

Any special assessment levied and assessed under Water Code section 35539.1 shall be due and payable and shall become delinquent in the manner provided in the Board's resolution which fixes the special assessment. If a special assessment becomes delinquent, a penalty of 5% of the amount of the special assessment shall immediately become due and payable. Interest on the amount of the special assessment and the penalty shall accrue after the date of sale of the delinquent land to the District at the rate of 9% per annum, but not less than three-fourths of 1% for any portion of a month.

ARTICLE VI.
LIMITATIONS ON OBLIGATIONS OF DISTRICT

6.00. Failure of United States or City to Perform.

The District shall not be liable for any failure to deliver any CVP Water to the extent that such failure is caused by the failure of the United States to perform any obligation imposed on the United States under the CVP Water Supply Contract. The District shall not be liable for any failure to deliver Kern River Water to the extent that such failure is caused by the failure of the City to perform any obligation imposed on the City under Agreement 76-61.

6.01. No Liability For Water Shortages.

The District shall not be liable for any damage arising from a shortage in the supply of CVP Water or Kern River Water, or both, to meet the water demands of the Water Users in the District.

6.02. No Liability For Facility Failure.

The District shall not be liable for any damage arising from a suspension of the delivery of water for the purposes of maintaining, repairing, replacing, investigating, or inspecting any District facility used for the delivery of water in the District.

6.03. No Liability For Delivery Beyond Turnout.

The District shall not be liable for the control, carriage, handling, use,

disposal or distribution of water delivered to a Water User after the water has passed through the District's turnout.

6.04. No Liability For Water Quality.

The District assumes no responsibility for the quality of water to be delivered through District facilities. The water, as delivered by the District, is unfit for human consumption.

ARTICLE VII.
MISCELLANEOUS PROVISIONS

7.00. Operation and Maintenance of District Facilities.

The operation and maintenance of all of the District facilities is within the exclusive control of the District. No person shall interfere with any facility of the District without the prior consent of the Operations Superintendent of the District.

7.01. Prohibitions.

(a) Pumping Into District Facilities.

No private pumping into or from District pipelines or reservoirs shall be permitted without the prior written consent of the District.

(b) Structures.

No structures of any kind shall be placed in, on, or over any District facility except as such are approved, both as to location and character of construction, by the District.

(c) Nuisances.

No rubbish, swill, garbage, manure or refuse, or dead animal or animal matter from any barnyard, stable, dairy or hog pen shall be placed in or allowed to be emptied into any District facility.

(d) Waste Waters.

No waste water shall be discharged into any District facility without the prior written consent of the District.

(e) Private Interference.

Attention is directed to Penal Code section 592 which provides as follows:

> "(a) Every person who shall, without authority of the owner or the managing agent, and with intent to defraud, take water from any canal, ditch, flume or reservoir used for the purpose of holding or conveying water for manufacturing, agricultural, mining, irrigating or generation of power, or domestic uses is guilty of a misdemeanor.
>
> "(b) If the total retail value of all the water taken is more than four hundred dollars ($400), or if the defendant has previously been convicted of an offense under this section or any former section that would be an offense under this section, or of an offense under the laws of another state or of the United States that would have been an offense under this section if committed in this state, then the violation is punishable by imprisonment in the county jail for not more than one year, or in the state prison."

RAG GULCH WATER DISTRICT
2008 Water Tolls by System

SYSTEM	TURNOUTS	Water Toll ($ per acre-foot) NON-FULL COST	FULL COST 202(3)	FULL COST 205(a)(3)	EXCESS	M&I
Joint Venture	E-1, E-2, D, D-2, A, B, F-2	$ 117.00	$ 119.00	$ 119.00	$ 119.00	$ -
North System		$ 117.00	$ 119.00	$ 119.00	$ 119.00	$ -
Woollomes/Cecil	1-A, 1-B, 1-C, 1-D, 2A, 2B, 18-A, 18-B, RG-3, RG-4, RG-5, RG-6,RG-8, RG-9, RG-10, RG-16, RG-19, LW-4, LW-5, LW-7, LW-8, LW-8A	$ 117.00	$ 119.00	$ 119.00	$ 119.00	$ -
Rag Gulch	RG-11, RG-12, R-4, R-8, 13-A, 13-B, 13-C, 14-A, 14-B,1-H	$ 135.00	$ 137.00	$ 137.00	$ 137.00	$ -
Ave 4	AV4-4, AV4-5	$ 120.00	$ 122.00	$ 122.00	$ 122.00	$ -

Exhibit B

KERN-TULARE WATER DISTRICT
2008 Water Tolls by System

SYSTEM	TURNOUTS	Water Toll ($ per acre-foot)				
		NON-FULL COST	FULL COST 202(3)	FULL COST 205(a)(3)	EXCESS	M&I
Joint Venture	36-1, 36-2, 36-3, 36-4, 36-5, 40-1, C-1, F-1, L-1, L-2, L-3, M1, M2	$ 112.00	$ 113.00	$ 113.00	$ 113.00	$ -
North System	G-1, G-2, G-5, N, E-3 40-3, 40-5, T-1, T-2, T-3, T-4	$ 112.00	$ 113.00	$ 113.00	$ 113.00	$ -
Woollomes/Cecil	RG-15, RG-17, 6-A, 6-B, 6-E, LW-2, LW-2B, LW-9 LW-10, LW-11, LW-14, LW-20, LW-21, LW-22, ULM	$ 112.00	$ 113.00	$ 113.00	$ 113.00	$ 135.00
South System	EL-1, EL-2, EL-3, EL-5, EL-6, EL-7, 6-H, 6-J, 6-E, 6-F	$ 137.00	$ 138.00	$ 138.00	$ 138.00	$ -
Rag Gulch	R-5, R-10, R-12, 13-H	$ 130.00	$ 131.00	$ 131.00	$ 131.00	$ -
Ave 4	AV4-2	$ 115.00	$ 116.00	$ 116.00	$ 116.00	$ -
Twin Pipes	TP-5, TP-6, TP-7, TP-8, TP-9, TP-10, TP-11, TP-12, TP-13, TP-15	$ 136.00	$ 137.00	$ 137.00	$ 137.00	$ -
Cameo	CL-2, CL-3, CL-4, CL-5, CL-6, CL-7, CL-9, CL-10, CL-12, CL-13, LW-17, LW-18	$ 151.00	$ 152.00	$ 152.00	$ 152.00	$ -

Exhibit B

KERN-TULARE AND RAG GULCH WATER DISTRICTS

The Kern-Tulare Water District and Rag Gulch Water District (the Districts) provide irrigation water to over 19,000 acres of high-value permanent crops in Kern and Tulare counties. The annual irrigation demand is approximately 54,000 acre-feet, of which the Districts currently provide approximately 40,000 acre-feet of imported water. The remaining 14,000 acre-feet per year are from groundwater pumped by water users.

WATER RESOURCES

Kern-Tulare Water District has a contract with the Bureau of Reclamation for 40,000 acre-feet of entitlement from the Central Valley Project (CVP) and Rag Gulch Water District has a CVP contract for 13,300 acre-feet. The California Department of Water Resources conveys water under this contract from the delta, through the California Aqueduct to Tupman. Water is then conveyed through the Cross Valley Canal from Tupman to the Friant-Kern Canal, where it is either delivered directly to the Districts or exchanged with Arvin-Edison for water available in the Friant-Kern Canal.

Kern-Tulare Water District has a contract with the City of Bakersfield for an average of 20,000 acre-feet per year of Kern River water and Rag Gulch Water District has a similar contract for an average of 3,000 acre-feet per year. Water under these contracts is delivered to Kern County Water Agency Improvement District No. 4 in exchange for State Water Project Water. The State Water Project water is conveyed through the Cross Valley Canal to the Friant-Kern Canal, where it is either delivered directly to the Districts or exchanged with Arvin-Edison for water available in the Friant-Kern Canal.

WATER COSTS

Water costs are set annually by the District's board of directors and vary based upon annual water supply. The table below summarizes 2008 water costs.

	Kern-Tulare	Rag Gulch
Special Assessment	$35 per acre for developed lands and $20 per acre for undeveloped lands within the District.	$27 per acre
Standby Charge	$72 per acre for all lands within the Service Area.	$70 per acre for all lands within the Service Area.
Water Toll	Varies (based upon location and RRA classification). See attached rate table.	Varies (based upon location and RRA classification). See attached rate table.

Kern Tulare Water District
5001 California Avenue, Suite 202
Bakersfield, CA 93309-1692
661-327-3132 phone
661-327-2724 fax

WATER SERVICE INVOICE

Bill To
Road Runner Farming LLC **401 Road 192** **Delano, CA 93215**

Date	Invoice #
8/29/2008	08-1342

Service From D...	Service To Date	System	Turnout(s)	AF/Month	AF/Year To Date
8/1/2008	8/29/2008	Woollomes/Cecil	6-B, LW-6	173.18	907.99

Item	Description	Qty	Rate	Amount
LW-6	Turnout: Water Service (Acre-Feet)	123.99	112.00	13,886.88
6-B	Turnout: Water Service (Acre-Feet)	49.19	112.00	5,509.28

If payment is not received by the 25th day of the billing month, a 10% penalty shall be added, as well as interest from the date of delinquency to the date of payment at a rate of .05% per day. If payment plus said penalty and interest is not received by 5:00 p.m. of the 5th weekday of the next month following the billing, the District shall suspend water deliveries.

Total	**$19,396.16**
Payments/Credits	**$0.00**
Balance Due	**$19,396.16**

RAG GULCH WATER DISTRICT
5001 California Avenue, Suite 202
Bakersfield, CA 93309
(661) 327-3132
(661) 327-2724 fax

WATER SERVICE INVOICE

Date	Invoice #
9/2/2008	08-1074

Bill To
ROAD RUNNER FARMING, LLC **Attn: Barbara Linder** **401 Road 192** **Delano, CA 93215**

Service From...	Service To D...	System	Turnouts	AF/Month	AF/Year to Date
8/1/2008	8/31/2008	Woollomes, Cecil	LW-4,5,7,8,18-A,B,1-D	266.42	1244.51

Item	Description	Qty	Rate	Amount
1-D	Water Service (Acre Feet)	25.52	117.00	2,985.84
LW-5	Water Service (Acre-Feet)	50.7	117.00	5,931.90
LW-7	Water Service (Acre Feet)	60.87	117.00	7,121.79
LW-8	Water Service (Acre Feet)	129.27	117.00	15,124.59
18-B	Water Service (Acre Feet)	0.06	117.00	7.02

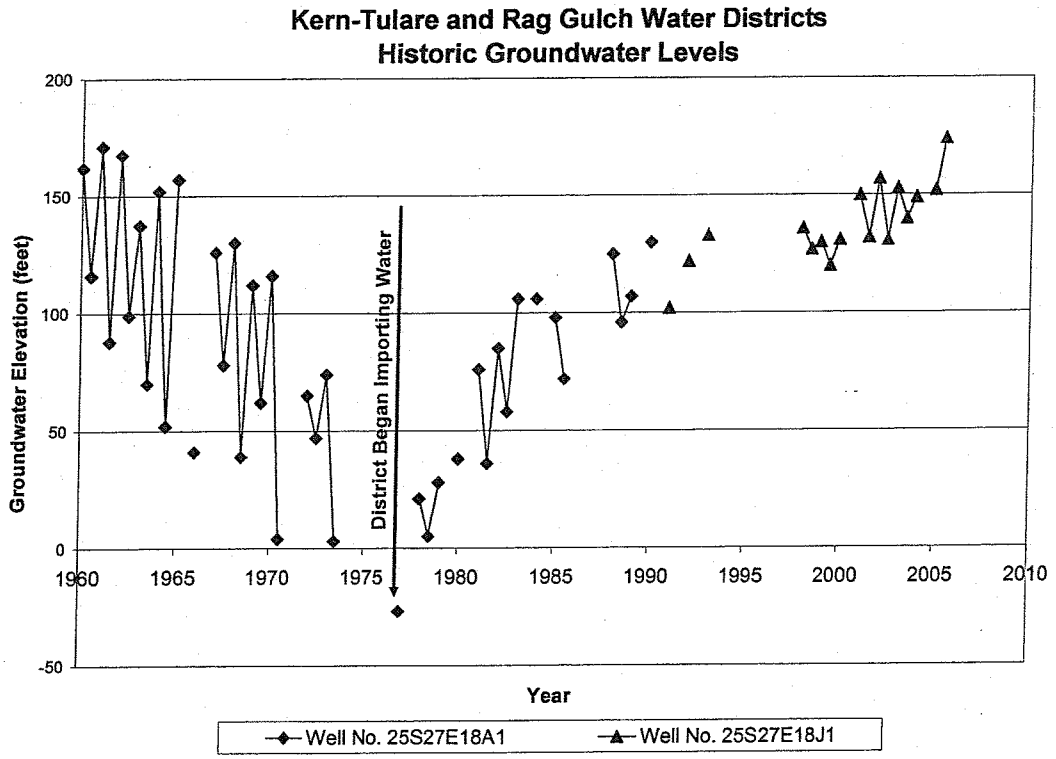
If payment is not received by the 25th day of the billing month a 10% penalty shall be added, as well as interest from the date of delinquency to the date of payment at a rate of .05% per day. If payment plus said penalty and interest is not received by 5:00 p.m. of the 5th weekday of the next month following the billing, the District shall suspend water deliveries.

Total	$31,171.14
Payments/Credits	$0.00
Balance Due	$31,171.14

KERN-TULARE WATER DISTRICT

RAG GULCH WATER DISTRICT

GROUNDWATER MANAGEMENT PLAN



June 20, 2006

Table of Contents

INTRODUCTION

This Groundwater Management Plan (Plan) is developed by the Kern-Tulare Water District and the Rag Gulch Water District (the Districts) in accordance with Part 2.75 (commencing with Section 10750) of Division 6 of the Water Code. The purpose of this Plan is to formalize existing groundwater management programs and assist with identification and implementation of modifications to these programs that will preserve and enhance the Districts' groundwater resource.

The procedure for adoption of a groundwater management plan includes the following:

- Hold a public hearing prior to adopting a resolution of intention to prepare a groundwater management plan (Water Code, §10753.2.)1
- Publish the resolution of intention to adopt a groundwater management plan. (§10753.3.)
- Prepare a groundwater management plan within two years of the date of the adoption of the resolution of intention. (§10753.4(a).)
- Provide a written statement to the public describing the manner in which interested parties would be allowed to participate in developing the plan. (§10753.4(b).)
- Hold a second public hearing to determine whether to adopt the plan. (§10753.5.)
- Submit a copy of the plan to the State of California Department of Water Resources (DWR) in electronic format. (§10753.7.)
- Adopt rules and regulations to implement and enforce the plan. (§10753.9.1.) These rules must consider the potential impact of those rules and regulations on business activities. (§10753.10.)

For the purposes of qualifying a groundwater management plan under section 10753.7, the plan must have the following components:

- Develop Basin management objectives for the groundwater basin.

1 All Statutory citations are to the Water Code unless otherwise indicated.

- Provide for monitoring and management of
  - groundwater levels
  - groundwater quality
  - inelastic land subsidence
  - Changes in surface water flow and quality that directly affect the groundwater levels or quality or are caused by groundwater pumping.
- Develop a plan to involve other agencies that enables the Districts to work cooperatively with other public entities who overly the groundwater basin.
- Prepare a map that details the area of the groundwater basin defined in DWR Bulletin No. 118, the boundaries of the Districts, and the boundaries of other agencies that overlie the basin.
- Adopt monitoring protocols designed to detect changes in groundwater levels, groundwater quality, inelastic surface subsidence, groundwater pumping, and changes in surface water and quality that directly affect the groundwater levels or quality or are caused by groundwater pumping.

DESCRIPTION OF DISTRICTS

Kern-Tulare Water District was formed on March 5, 1974, and Rag Gulch Water District was formed on January 24, 1955, both for the purpose of providing surface water. The Districts encompasses 23,069 acres and are located on the eastern side of the San Joaquin Valley in Kern and Tulare Counties, approximately 8 miles east of Delano and 27 miles north of Bakersfield. The Districts are located in groundwater basins 5-22.13 and 5-22.14 as shown in Figure 1.

17,200 acres of the 23,069 acres are irrigated. The Districts provide no domestic or residential water supplies. At the present time, all irrigated lands are planted to high-value permanent crops. A summary of land use in 2005 is presented in the Table 1 below.

Table 1

2005 Land Use (acres)			
	Kern-Tulare	Rag Gulch	Total
Almonds	702	133	835
Apples	5	0	5
Blue Berries	0	89	89
Cherries	98	0	98
Grapes	3,626	3,271	6,897
Grapefruit	10	0	10
Kiwi	201	0	201
Lemons	125	0	125
Olives	204	0	204
Oranges	5,913	885	6,798
Persimmons	17	0	17
Pistachios	1,626	270	1,896
Pomegranates	25	0	25
Total Irrigated	12,552	4,648	17,200
Non-irrigated	4,563	1,306	5,869
Total	17,115	5,954	23,069

The Districts share a common distribution system and staff. A map of the Districts' facilities is presented in Figure 2.

Groundwater Basins in California

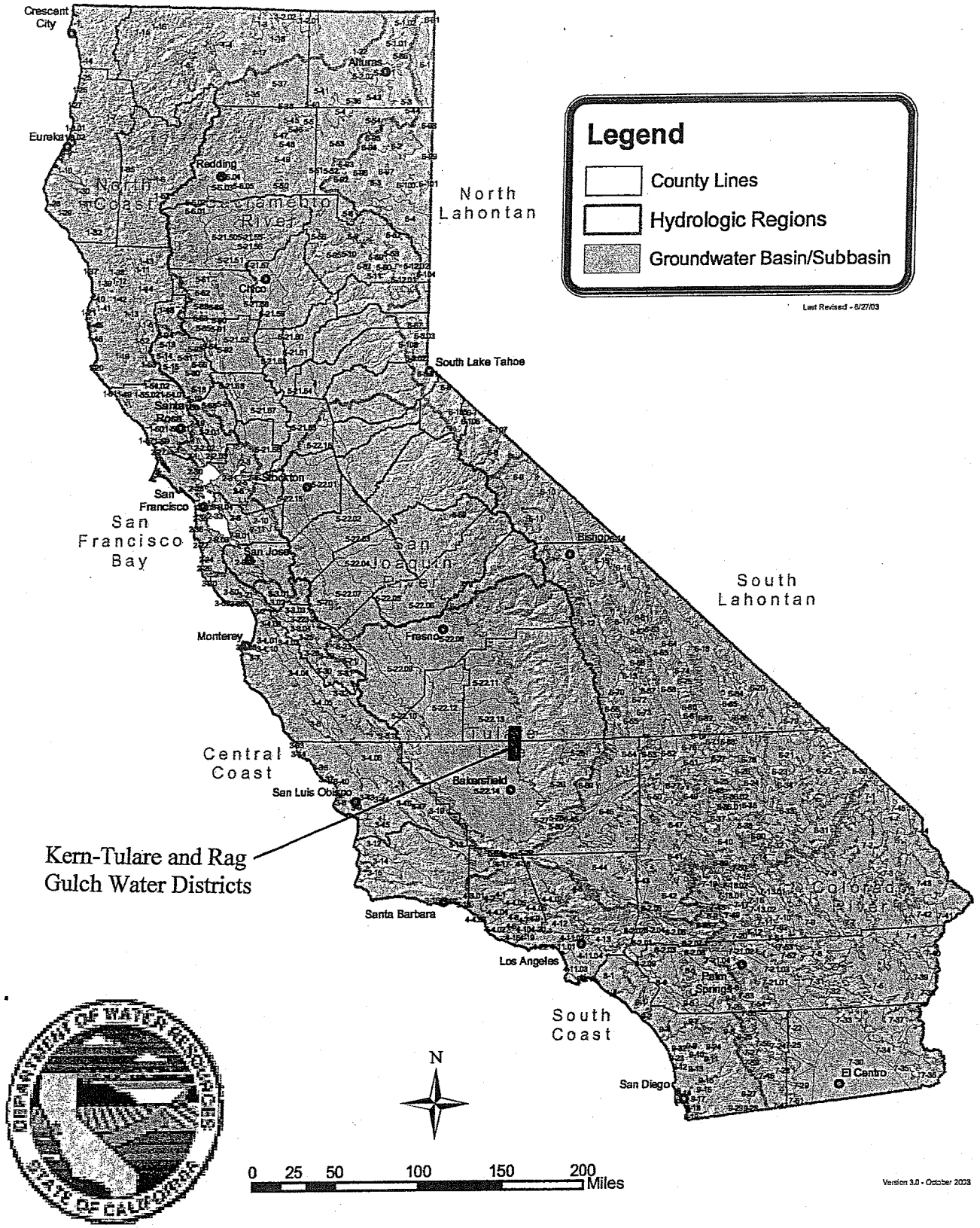
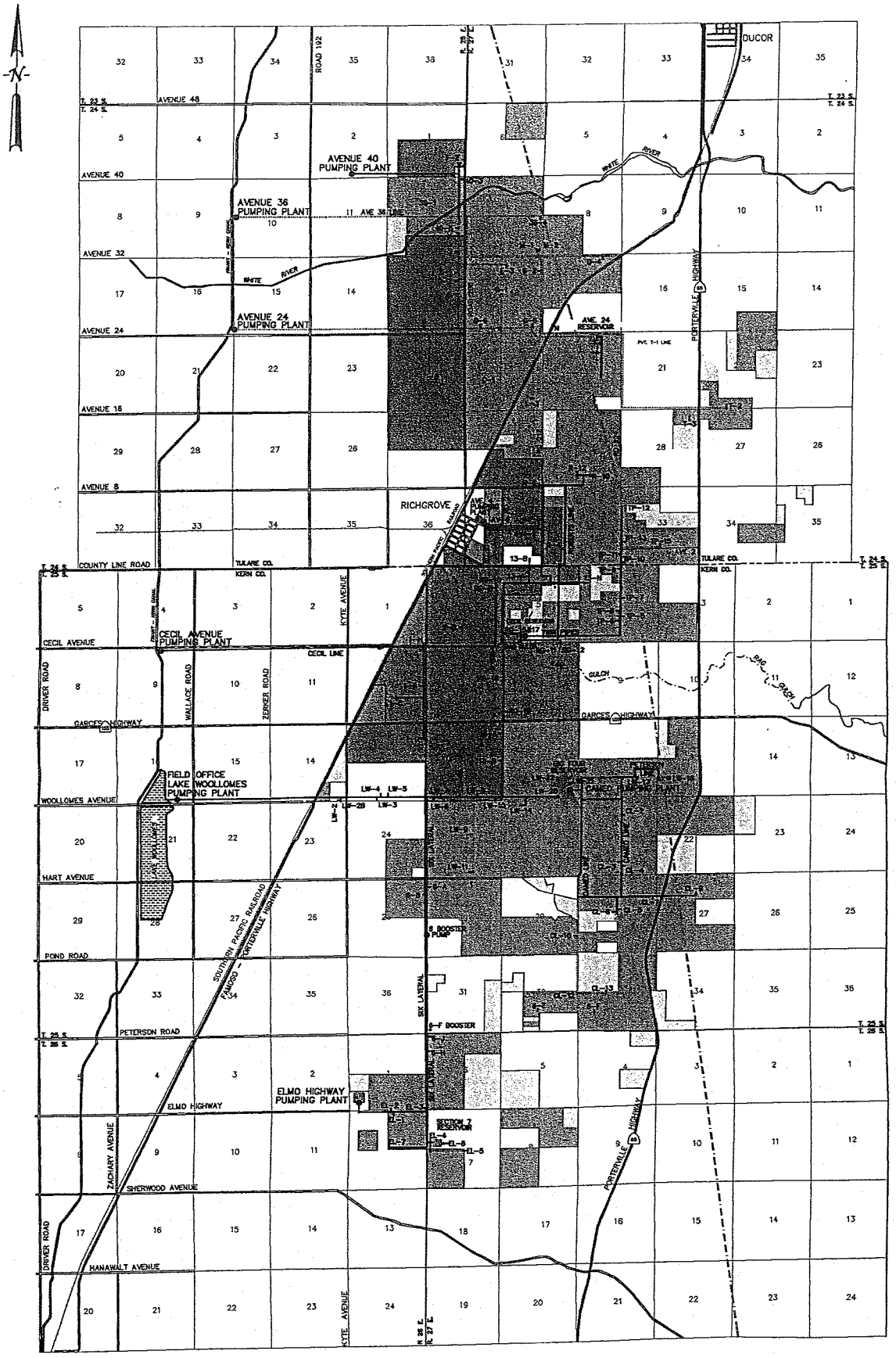


Figure 1



KERN–TULARE WATER DISTRICT
RAG GULCH WATER DISTRICT

DISTRIBUTION FACILITIES AND SERVICE AREA

January 2006

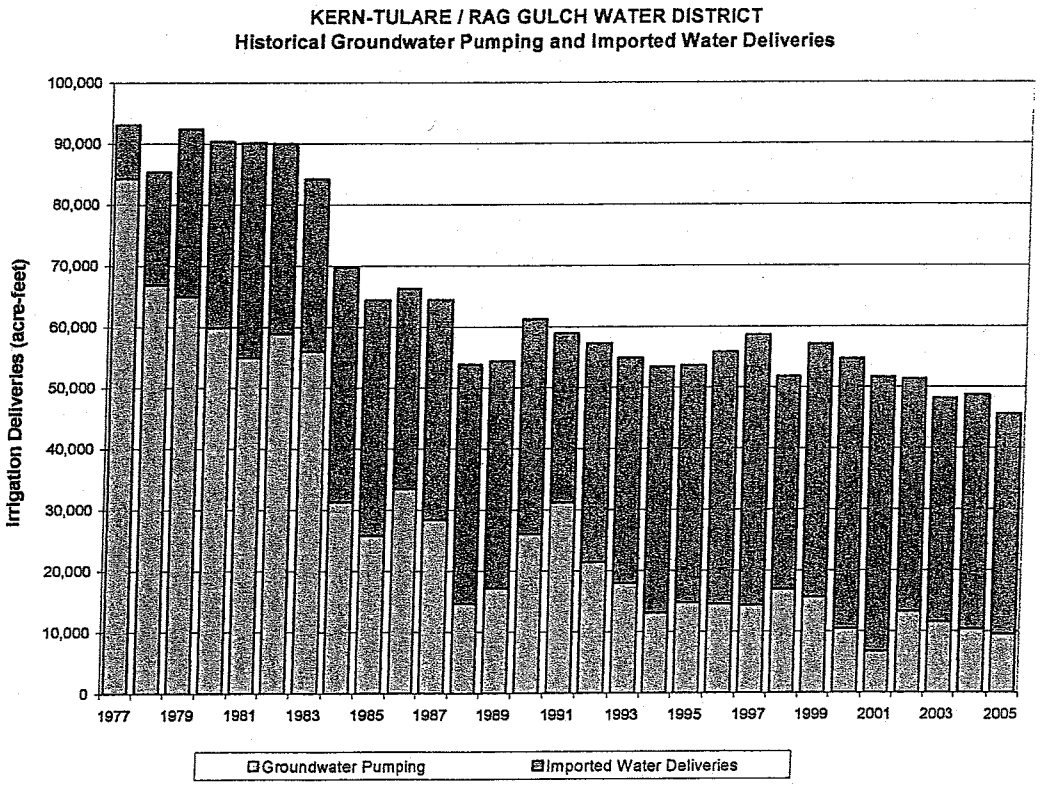
LEGEND

- DISTRICT PIPELINE
- PRIVATE LINE
- PUMPING PLANT
- FARM TURNOUT
- KERN–TULARE SERVICE AREA
- KERN–TULARE NON–SERVICE AREA
- RAG GULCH SERVICE AREA

The Districts' facilities consist of 12 pumping plants, approximately 65 miles of pressure pipeline, and 4 reservoirs to deliver water upslope from the Friant-Kern Canal. The Districts' distribution system is inadequate to fully satisfy irrigation demands within the service area. As a result, irrigation deliveries are prorated during the summer months and water users rely upon privately owned wells, even in years of ample surface water supply.

Figure 3 illustrates the portion of irrigation demands satisfied with imported water and that portion satisfied with groundwater pumping over the past 29 years. The irrigation demand has continually decreased and the imported water deliveries have increased slightly over time. The decrease in irrigation demand is due to improved irrigation methods and lands being taken out of production. The increase in imported water deliveries is due to distribution system improvements that have lead to reduced groundwater pumping.

Figure 3



GEOLOGIC SETTING

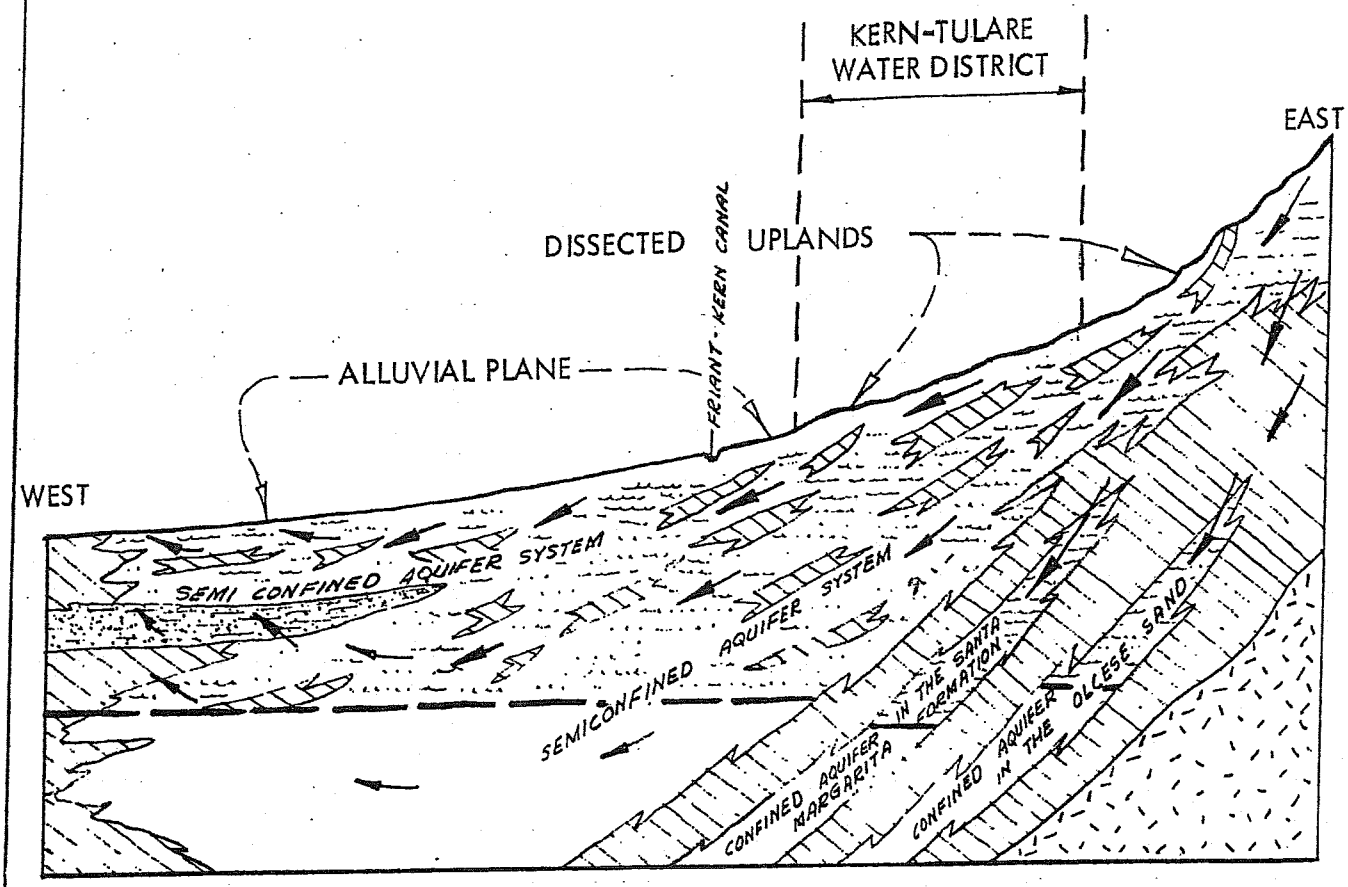
Figure 4 provides a generalized subsurface cross section extending from west to east through the Districts. The geological sequences of permeable, water-bearing sediments within the Districts, from youngest to oldest, are: 1) continental deposits, 2) the Santa Margarita formation, and 3) the Olcese sand.

Wells drilled on the west side of the Districts tap into the continental deposits. Continental deposits comprise an unconfined aquifer and are the most commonly tapped aquifer in the region. The top of this aquifer is the water table and the bottom is the base of freshwater, which is believed to occur at a depth of 2,000 feet.

Wells drilled on the east side of the Districts tap into the confined aquifers of the Santa Margarita formation and Olcese sand deposits. The Santa Margarita formation begins from 1,000 to 1,700 feet below the surface, ranging in thickness from 150 to 200 feet. Underlying the Santa Margarita formation by about 150 to 200 feet is the Olcese sand aquifer, ranging in thickness from 300 to 450 feet.

The Santa Margarita formation and the Olcese sand deposits are shallow to the east and deepen to the west. These deposits contain useable groundwater and are located beneath fine-grained deposits that limit the natural recharge from the land surface. In the easterly parts of the Districts, a number of wells drilled to depths of 1,400 to 2,500 feet tap highly permeable deposits of the Santa Margarita and/or the Olcese Formations. These formations are considered to be a separate aquifer from the continental deposits. Fresh groundwater is present in some areas of the Santa Margarita formation and the Olcese sand deposits to depths exceeding 3,000 feet.

Two nearly vertical subparallel faults (Hodgeman Ranch Fault and Primier Fault) transect the Districts from north to south. Based upon review of groundwater level and quality information, faulting in the area appears to have little or no impact upon groundwater conditions.



DIAGRAMMATIC SECTION SHOWING THE GROUND WATER RESERVOIR

LEGEND

- Low permeability deposits
- Water-yielding deposits
- Corcoran Clay Member of the Tulare Formation
- Basement Complex
- Direction of ground water flow
- Base of fresh water

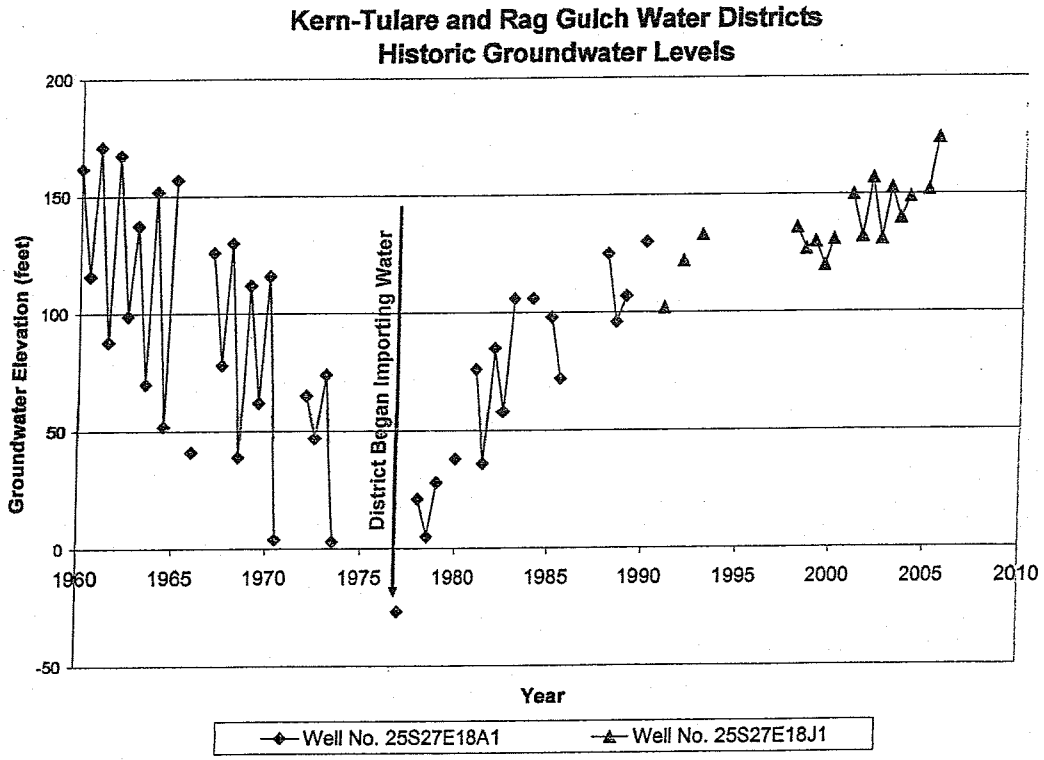
SECTION - GROUND WATER RESERVOIR

Figure 4

OCCURRENCE AND MOVEMENT OF GROUNDWATER

A hydrograph of groundwater elevations from 1960 to date is presented in Figure 5. This hydrograph is located near the center of the Districts and is representative in changes in groundwater levels throughout the Districts. Groundwater levels within the Districts were falling at a rate of approximately 10 feet per year prior to 1977. As a result of these declining groundwater levels, groundwater quality was degrading and subsidence of the land surface was occurring. Groundwater conditions have steadily and dramatically improved since 1977 as a result of the Districts' importation of irrigation water into the area.

Figure 5



Elevations of groundwater levels within the Districts for spring 2000 are presented in Figure 6. Groundwater flows from both the east and west into the Districts.

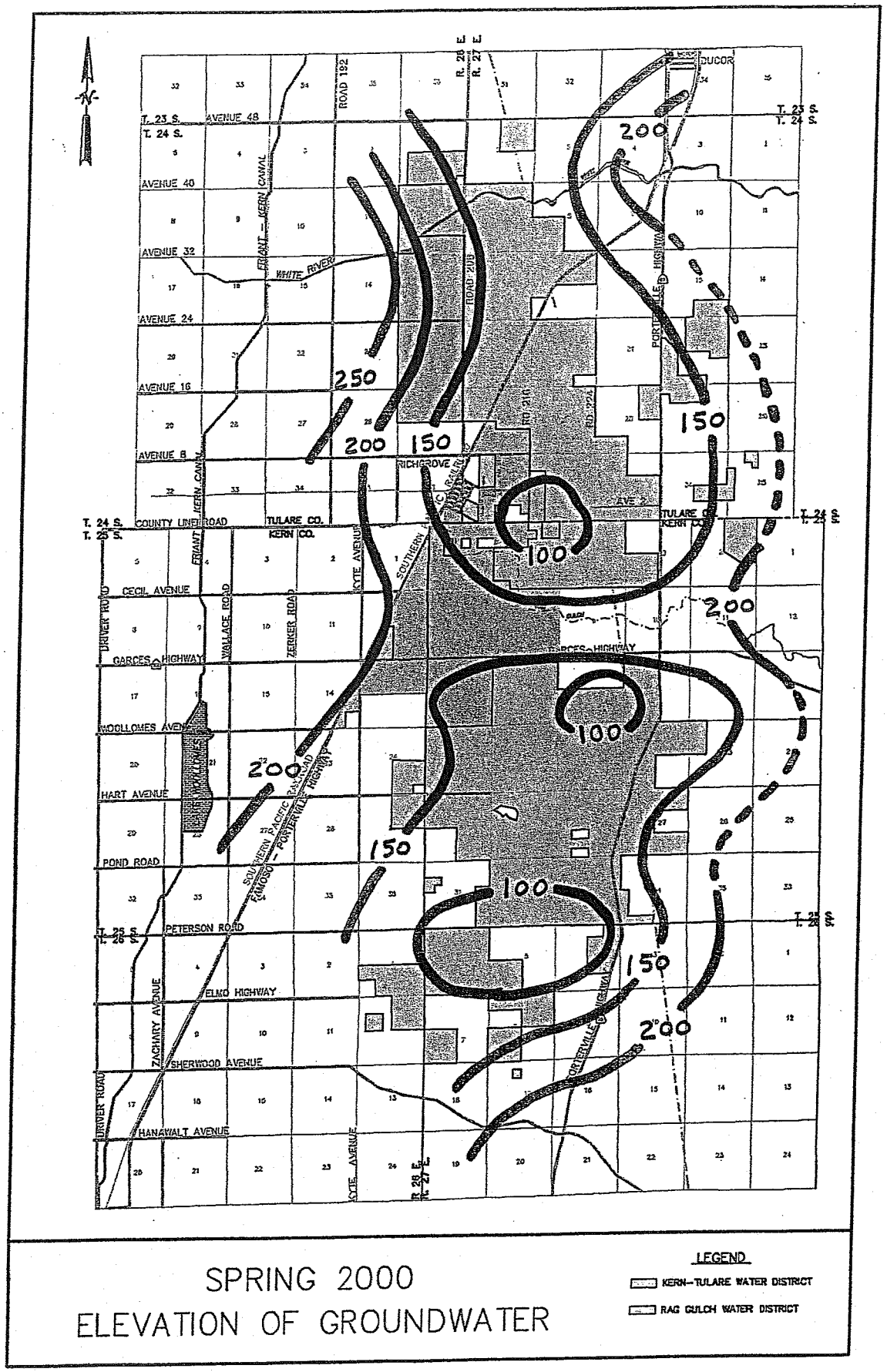

SPRING 2000
ELEVATION OF GROUNDWATER
LEGEND
KERN-TULARE WATER DISTRICT
RAG GULCH WATER DISTRICT
200
250
150
100
T. 23 S.
T. 24 S.
T. 25 S.
T. 26 S.
R. 26 E.
R. 27 E.
AVENUE 48
AVENUE 40
AVENUE 32
AVENUE 24
AVENUE 16
AVENUE 8
COUNTY LINE ROAD
TULARE CO.
KERN CO.
CECIL AVENUE
GARCES HIGHWAY
WOOLLOMES AVENUE
HART AVENUE
POND ROAD
PETERSON ROAD
ELKO HIGHWAY
SHERWOOD AVENUE
HANAWALT AVENUE
WHITE RIVER
RICHGROVE
DUCOR
ROAD 192
ROAD 208
ROAD 216
ROAD 224
FRIANT - KERN CANAL
DRIVER ROAD
WALLACE ROAD
ZERKER ROAD
KYTE AVENUE
ZACHARY AVENUE
SOUTHERN PACIFIC RAILROAD
RAMOSO - PORTERVILLE HIGHWAY
PORTERVILLE HIGHWAY
ORTERVILLE HIGHWAY

Figure 6

Sources of groundwater replenishment include underflow from foothill recharge areas, recharge from intermittent streams, and groundwater inflow from the west. The movement of groundwater has historically been westerly from the foothills toward the San Joaquin Valley. However, groundwater extraction in excess of groundwater recharge within the Districts has locally reversed this westerly gradient. In addition, Delano-Earlimart Irrigation District (DEID) and Southern San Joaquin Municipal Utility District (SSJMUD), located immediately to the west of the Districts, receive firm supplies of Central Valley Project (CVP) water, which has caused improved water levels beneath those districts.

GROUNDWATER QUALITY

Groundwater in the continental deposits contains between 250 and 400 parts per million (ppm) total dissolved solids and is of a calcium bicarbonate or sodium bicarbonate chemical type. The water is classified as suitable for irrigation.

Sedimentary rocks comprising the Santa Margarita and the Olcese formations are largely marine in origin and probably contained salty water when deposited. This water was subsequently flushed out due to recharge of fresh groundwater. A short distance west of Richgrove an interface between fresh and saline water is believed to exist in these formations which extends southeasterly through the Districts. Fresh groundwater found west of the interface is attributed to partial flushing by fresh water subsequent to the deposition of the aquifer. Water east of the interface is sodium chloride in character with total dissolved solids concentrations between 300 and 500 ppm and is classed as having medium to high salinity hazard and high to very high sodium hazard. Groundwater from the Santa Margarita and the Olcese Formations is high in hydrogen sulfide concentrations, which produces an objectionable odor. The danger in continued usage of this aquifer is that continued pumping can cause the salt water interface to migrate towards the east.

SUBSIDENCE

Subsidence of the land surface is caused by over-pumping of water from a confined aquifer system. As groundwater is extracted, storage that exists in pore space of the soil disappears and cannot be replaced. Over the period from 1962 through 1970, prior to when the Districts began importing significant amounts of surface water, subsidence in the Districts ranged from 0.5 to 1.5 feet. As a result of reduced groundwater pumping due to imported water supplies, it is the Districts understanding that subsidence has been eliminated.

WATER RESOURCES

CVP SUPPLIES

Kern-Tulare Water District has a contract with the Bureau of Reclamation for an annual supply of 40,000 acre-feet from the CVP. Rag Gulch Water District has a contract for an annual supply of 13,300 acre-feet. DWR conveys water under this contract through the California Aqueduct to Tupman. Water is then conveyed through the Cross Valley Canal, where it is either delivered to the Friant-Kern Canal or exchanged with Arvin-Edison Water Storage District (Arvin-Edison WSD) for water available in the Friant-Kern Canal.

The Districts contract annually for Section 215 Water. The Districts also purchase Class 1 and Class 2 Friant water supplies from Friant Contractors on an as-available basis. Occasionally, there are flood flows available from the Friant-Kern Canal, which the Districts also purchase.

KERN RIVER SUPPLIES

Kern-Tulare Water District has a contract with the City of Bakersfield for an average annual supply of 20,000 acre-feet of Kern River water. Rag Gulch Water District has a similar contract for an average annual supply of 3,000 acre-feet. Water under these contracts is delivered to Kern County Water Agency Improvement District No. 4 in exchange for State Water Project (SWP) water. The SWP water is conveyed through the Cross Valley Canal, where it is either delivered to the Friant-Kern Canal or exchanged with Arvin-Edison WSD for water available in the Friant-Kern Canal.

ARVIN-EDISON EXCHANGE

The Districts' CVP water supplies are available on the California Aqueduct or the Cross Valley Canal while the Districts are located east of the Friant-Kern Canal. This geographical difference caused the Districts to enter into a long-term exchange agreement with Arvin-Edison WSD. Under terms of this exchange, the Districts deliver all or a portion of their CVP supplies to Arvin-Edison WSD in the Cross Valley Canal and Arvin-Edison WSD makes water available to the Districts in the Friant-Kern Canal. However, there are years when there is not enough water available on the Friant system for exchange. In these years the Districts have the capability to deliver CVP water directly from the Cross Valley Canal into the Friant-Kern Canal.

OTHER BANKING AND EXCHANGE PROGRAMS

As a result of increasing federal and state regulatory actions in the delta, the Districts' CVP water supply reliability has been significantly reduced. If surface water supplies to the Districts are reduced, groundwater pumping will increase to meet the irrigation demands of water users. This reduction in the Districts CVP water supply has caused the Districts to pursue banking and exchange programs to compensate for the reduced supply. Below is a description of three such programs.

Kern County Water Agency Exchange

The Districts' CVP water is conveyed in the California Aqueduct under contract with DWR. Under this contractual agreement the Districts have a second priority (after DWR use) to pumping capacity at Banks Pumping Plant. This second priority causes uncertainty in some year with respect to being able to pump the Districts' CVP water south of the delta. As a result of these uncertainties, the Districts entered into an agreement with the Kern County Water Agency (Agency) to assist with regulation of this water supply. Under terms of the agreement, the Agency provides SWP water to the

Districts on an irrigation demand schedule and the Agency takes delivery of the Districts' CVP supply as capacity at Banks Pumping Plant is available.

North-Kern Water Storage District

The Districts have developed a groundwater banking program with North Kern Water Storage District (North Kern WSD) to deliver water to North Kern WSD for later withdrawal and use by the Districts. The project yields an estimated dry year supply of 5,000 acre-feet and improves local groundwater supplies to North Kern WSD. A 25-year agreement between the Districts and North Kern WSD was recently executed. The agreement requires the Districts to bank water before it can be extracted and leave 10% of the water banked in North Kern WSD to account for losses. Supplies available to the Districts for banking include the Districts' CVP contract supplies, Section 215 water, flood flows conveyed in the Friant-Kern Canal, purchases from Friant contractors, and Kern River water.

Rosedale-Rio Bravo Water Storage District

The Districts have also developed a groundwater banking program with the Rosedale-Rio Bravo Water Storage District (Rosedale-Rio Bravo WSD). The project consists of the Districts recharging water in Rosedale-Rio Bravo WSD when surface water supplies are available and extracting groundwater during years of inadequate surface water supplies. The project yields an estimated dry year supply of 9,000 acre-feet and improves local groundwater supplies to Rosedale-Rio Bravo WSD. A 25-year agreement between the Districts and Rosedale-Rio Bravo WSD was recently executed. The agreement requires the Districts to bank approximately two acre-feet for each acre-foot extracted and bank water before it can be extracted. Supplies available to the Districts for include the Districts' CVP contract supplies, Section 215 water, flood flows conveyed in the Friant-Kern Canal, purchases from Friant contractors, Kern River water, and SWP water.

FUTURE WATER SUPPLIES

The Districts have significant concerns with regard to future water supplies. Below is a description of three of these concerns.

1. As previously discussed, federal and state regulatory actions in delta have severely limited the ability of the Districts to receive their CVP water supplies.
2. The initial term of the contract with the City of Bakersfield ends on December 31, 2011. The ability of the Districts to receive a reliable supply of Kern River is uncertain beyond 2011.
3. A coalition of environmental groups has filed a lawsuit against the Federal government related to water supply contracts in the Friant Division of the CVP. The result of this lawsuit has the potential to substantially reduce the ability of the Districts to purchase Friant Class 1, Class 2, and Section 215 water supplies.

GROUNDWATER MANAGEMENT

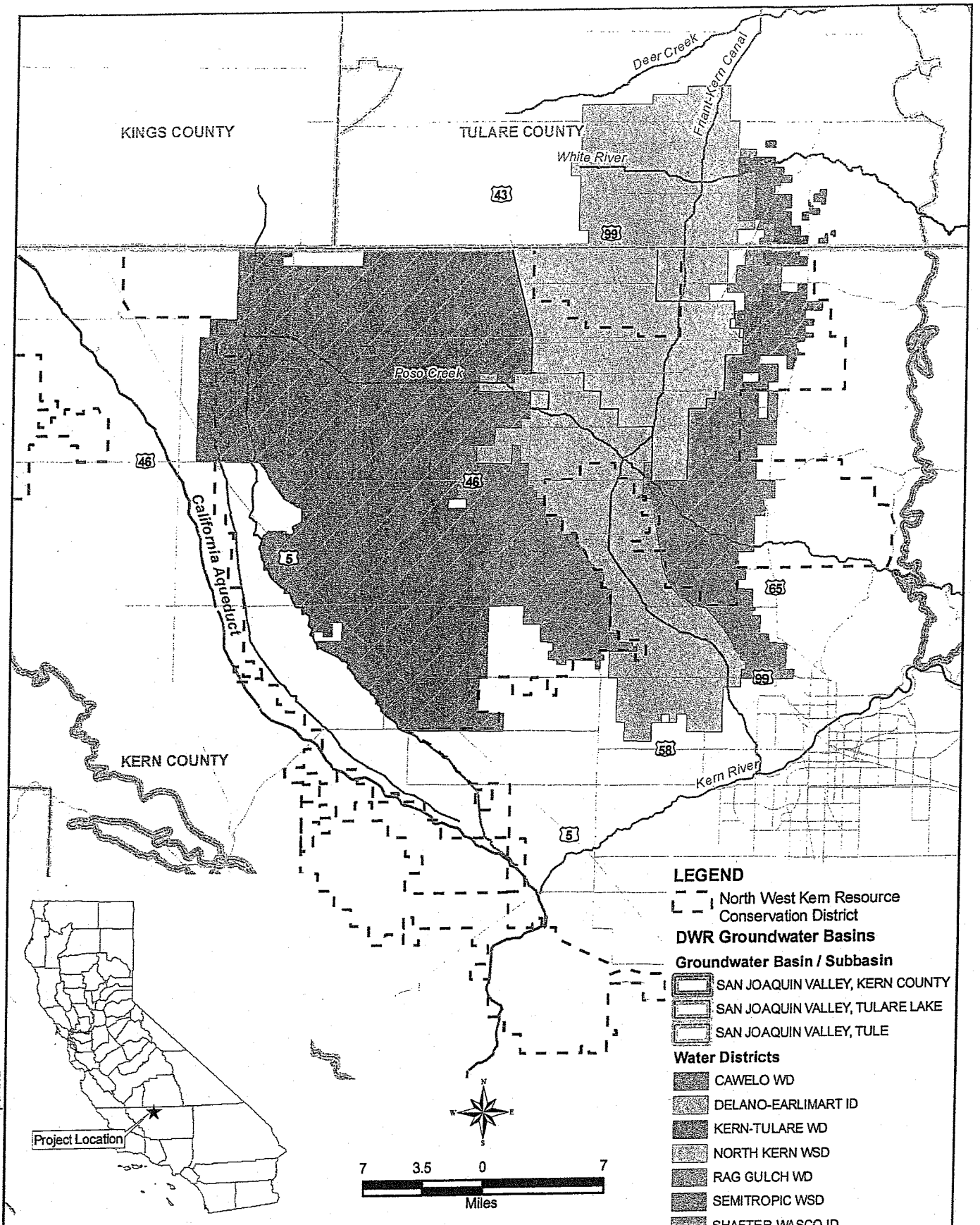
REGIONAL AGENCY INVOLVEMENT

Recently, the Districts, along with other districts in the region, formed the Poso Creek Regional Management Group. A map that details the area of the management group is presented in Figure 7. This regional management group was formed to enhance and refine the water management and planning activities currently under way in the region and will develop regional water management strategies and the framework for implementing them. Other members of the management group include:

- Semitropic Water Storage District
- Shafter-Wasco Irrigation District
- North Kern Water Storage District
- Cawelo Water District
- Delano-Earlimart Irrigation District
- North West Kern Resource Conservation District

The Districts are currently participating in a groundwater mediation process being led by the Agency. The mediation process involves the Agency, representatives from 17 water districts within the San Joaquin Valley portion of Kern County, the City of Bakersfield, and others. The purpose of this mediation is to agree upon rules for local management of the groundwater basin.

In 2001, the Districts participated along with eight other local water districts (Delano – Earlimart Irrigation District, Lower Tule River Irrigation District, Pixley Irrigation District, Porterville Irrigation District, Saucelito Irrigation District, Southern San Joaquin Municipal Utility District, Stone Corral Irrigation District, and Terra Bella Irrigation District) to prepare a report entitled: "Analysis of Groundwater Resources". The purpose of the investigation was to characterize the hydrologic conditions and identify favorable areas for recharge of surface water supplies that can be stored underground and later recovered.



Note: The area within the Conservation District, and outside the Water District areas, is not included in the IRWMP study area.

05-10-06 S:/GIS/Projects/033740/Basemap.mxd

Semitropic Water Storage District Poso Creek IRWMP	Bookman-Edmonston A Division of GEI Consultants	MANAGEMENT GROUP DISTRICT BOUNDARIES
Kern County, California SOURCE: CA Spatial Library		APRIL 2006 Figure 7

The Districts are members of the Friant Water Authority and the Friant Water Users Authority. As members of these authorities, the staff of the Districts attends several meetings a month to work cooperatively on water supply related issues, including groundwater management and surface water supplies.

The Districts are participants in the Cross Valley Canal, and as such, meet on a monthly basis with other local water districts and urban purveyors to work cooperatively on water conveyance and other related issues.

PUBLIC INVOLVEMENT

Public involvement for developing this Plan was initiated by publishing notices in the Visalia Times Delta and the Delano Record. Interested parties were invited to participate in development of the Plan by (1) requesting a copy of the draft plan, (2) submitting comments in writing, (3) attending a public hearing, and (4) attending regular monthly meetings of the Districts' boards of directors.

BASIN MANAGEMENT OBJECTIVES

The basin management objectives for the Districts are: (1) maintain or improve groundwater levels within the Districts, (2) control degradation of groundwater quality, and (3) limit land subsidence. These objectives can be accomplished as follows:

1. Pursue and support measures that will increase the yield and reliability of the Districts' CVP water supplies.
2. Work cooperatively with the City of Bakersfield and the Agency to acquire additional water supplies beyond 2011.
3. Continue to purchase Friant water supplies, Section 215 water, and other water available from the Friant-Kern Canal.
4. Continue to pursue water exchanges and banking programs with other water districts.

5. Develop groundwater recharge and/or banking programs within the Districts' boundaries.
6. Revise water pricing policies to encourage water users to maximize the use of surface water when it is available to save groundwater for future years.
7. Improve distribution facilities to maximize the delivery capability of surface water when it is available to save groundwater resources for future years.

MONITORING PLAN

The Districts' monitoring program provides data necessary for the Districts to evaluate changes in the local groundwater basin. The Districts' monitoring program consists of the following elements.

Groundwater levels

Groundwater levels are measured at approximately 100 wells throughout the Districts in the spring and the fall each year. These data are available from the Agency and from the DWR Web Site. Additionally, the Agency prepares an annual report that includes contours of groundwater levels.

Groundwater quality

Groundwater quality samples are occasionally taken in wells throughout the Districts. These data are available from the Agency and from the DWR Web Site. Additionally, the Agency prepares an annual report that identifies areas of water quality concern throughout the county. The most recent report does not indicate there are any areas of concern for the Districts.

Subsidence

Prior to the importation of surface water supplies, land surface subsidence was a significant concern. However, since surface water importation to the area began, the Districts are unaware of any issues related to subsidence. Therefore, the Districts have not found it necessary to monitor subsidence and have relied upon infrequent studies by state and federal agencies.

Changes in surface flow and surface water quality

The Districts are not aware of any changes in surface flow and surface water quality that directly affect the groundwater basin or are caused by groundwater pumping.

MONITORING PROTOCOLS

The Districts will periodically prepare a monitoring report to present the results of the monitoring program. The contents of the monitoring report could include:

- Maps showing groundwater elevations
- Water-level hydrographs
- Changes in water quality over time
- Assessment of effectiveness of basin management objectives and changes to those objectives

PLAN REVIEW

The Districts' Board of Directors will review the Plan every five years or sooner if needed.

KERN-TULARE Water District

OK

2008 Water Ordering and Delivery Application

LANDOWENER: Road Runner Farming, LLC
401 Road 192
Delano, CA 93215

FARM ENTITY	APN	TURNOUT NUMBER
Road Runner Farming, LLC	050-170-2100	6-B
Road Runner Farming, LLC	050-170-2200	6-B
Road Runner Farming, LLC	050-170-1900	6-B
Road Runner Farming, LLC	050-170-2300	6-B
Road Runner Farming, LLC	050-170-2401	6-B
Road Runner Farming, LLC	050-170-2001	6-B
Road Runner Farming, LLC	050-170-1801	6-B
Road Runner Farming, LLC	050-170-1701	6-B
Road Runner Farming, LLC	050-170-1601-	6-B
Road Runner Farming, LLC	050-170-1500	6-B
Road Runner Farming, LLC	050-170-1400-	6-B
Road Runner Farming, LLC	050-010-0500	LW-6

The undersigned represents to Kern-Tulare Water District that the following described person(s) or entities are hereby authorized to order water from Kern-Tulare Water District for use on the above said land through said turnouts.

NAME	PHONE NO.
Andrew Pandol	747-1644
Matt Pandol, Jr.	747-5218
Tom Oglesby, Art Jauregui	725-3755

Following is the address to which all water service statements should be sent:

NAME: Road Runner Farming, LLC - Attn: Barbara Lindner

ADDRESS: 401 Road 192 CITY, STATE, ZIP Delano, CA 93215

PHONE: 725-3755 FAX: 725-4741 E-MAIL: acctadmin@pandol.com

The undersigned is the owner of the above-described parcels served irrigation water by the referenced turnout numbers. It is understood that all water used or ordered for use by persons authorized above for the above land during the period of 1/1/08 to 12/31/08 will become an obligation against said land. **THIS MEANS THAT THE UNDERSIGNED REALIZES THAT WATER SERVICE STATEMENTS WHICH BECOME DELINQUENT MAY BECOME ENFORCEABLE LIENS UPON THE LAND DESCRIBED ABOVE.** It is further understood that if payment is not received by the 25th day of the billing month a 10% penalty shall be added plus interest from the date of delinquency to the date of payment at a rate of .05% per day. If payment plus said penalty and interest is not received by 5:00 P.M. of the 5th weekday of the next month following the billing, District shall suspend water deliveries.

DATE: 1/17/08 LANDOWNER'S SIGNATURE: [signature]

RECEIVED
JAN 21 2008
KERN-TULARE WATER DISTRICT

NAME OF LANDOWNER: (Printed) Road Runner Farming, LLC

NAME OF FARM OR ENTITY: 401 Road 192 - Delano, CA 93215

LANDOWNER'S ADDRESS: 725-3755 / 725-4741

PHONE and FAX NO:

OK

RAG GULCH Water District

2008 Water Ordering and Delivery Application

LANDOWENER: Road Runner Farming, LLC
401 Road 192
Delano, CA 93215

FARM ENTITY	APN	TURNOUT NUMBER
Road Runner Farming, LLC	051-110-6200	18-A,18-B,LW-7.LW-8

The undersigned represents to Rag Gulch Water District that the following described person(s) or entities are hereby authorized to order water from Rag Gulch Water District for use on the above said land through said turnouts.

NAME	PHONE NO.
Andrew Pandol	747-1644
Matt Pandol, Jr.	747-5218
Tom Oglesby, Art Jauregui	725-3755

Following is the address to which all water service statements should be sent:

NAME: Road Runner Farming, LLC - Attn: Barbara Lindner

ADDRESS: 401 Road 192 CITY, STATE, ZIP Delano, CA 93215

PHONE: (661) 725-3755 FAX: (661) 725-4741 E-MAIL: Acctadmin@pandol.com

The undersigned is the owner of the above-described parcels served irrigation water by the referenced turnout numbers. It is understood that all water used or ordered for use by persons authorized above for the above land during the period of 1/1/08 to 12/31/08 will become an obligation against said land. **THIS MEANS THAT THE UNDERSIGNED REALIZES THAT WATER SERVICE STATEMENTS WHICH BECOME DELINQUENT MAY BECOME ENFORCEABLE LIENS UPON THE LAND DESCRIBED ABOVE.** It is further understood that if payment is not received by the 25th day of the billing month a 10% penalty shall be added plus interest from the date of delinquency to the date of payment at a rate of .05% per day. If payment plus said penalty and interest is not received by 5:00 P.M. of the 5th weekday of the next month following the billing, District shall suspend water deliveries.

DATE: 1/17/08 LANDOWNER'S SIGNATURE: [signature]

NAME OF LANDOWNER:

NAME OF FARM OR ENTITY: (Printed) Road Runner Farming, LLC

LANDOWNER'S ADDRESS: 401 Road 192 - Delano 93215

PHONE and FAX NO: 725-3755 / 725-4741

RECEIVED
JAN 21 2008
RAG GULCH
WATER DISTRICT

FRIANT WATER AUTHORITY

FRIANT Waterline

May 2009
Volume 21, No. 187

Millerton Lake Is At The Top

Canal Seepage Briefly Causes Friant Concern

Very high Friant-Kern Canal releases caused by the need to move water from runoff-swollen Millerton Lake had an unexpected consequence that caused a great deal of early May concern.

Seepage was detected on a hillside below the canal's headworks immediately downstream from Friant Dam, leading to a

Please see **Canal Problem**, Page 2

You'd never know that it is a dry year to look at Millerton Lake behind Friant Dam.

Rainfall and snow accumulations across the San Joaquin River watershed are significantly below average for a third consecutive year. Millerton Lake, however, has been nearly full since late April and its surface was lapping at the spillway crest at press time June 1 with most upstream reservoirs at or near capacity.

Looks, however, are deceiving this year.

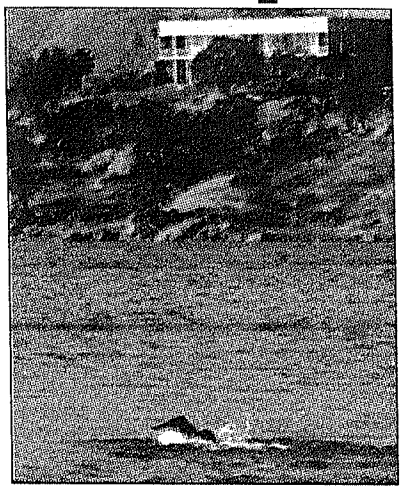
"While conditions have improved fairly dramatically, the fact is that our San Joaquin River water supply is quite a bit below average for the third year in a row," said Ronald D. Jacobsma, Friant Water Authority General Manager. "This is inevitably putting ongoing pressure on groundwater reserves."

99% OF CAPACITY

As of late on May 30, the lake held 516,270 acre-feet, or 99.2% of its capacity of 520,500 acre-feet. The reservoir has been nearly that full for weeks, a situation created even in below-average runoff years by Millerton Lake's small capacity.

The U.S. Bureau of Reclamation was able to avoid a spill into the San Joaquin River during May by boosting the Friant Division's Class 1 water supply to a full 800,000 acre-feet and declaring an "uncontrolled season" on April 29. That triggered opportunities for Friant contractors to unexpectedly use a limited amount of Class 2 water (which develops only after all Class 1 demands can be met).

Please see **Water Supply**, Page 2



Friant Water Authority
A swimmer makes waves in runoff-swollen Millerton Lake.

Humans Do Count, Judge Rules

Wanger Says Effects On People Must Be Factored Into Pumping Cutbacks

U.S. District Judge Oliver Wanger of **THOUSANDS UNEMPLOYED**

gation is being reduced, land subsidence is